U.S. Army Environmental Center

Preliminary Assessment of the Army National Guard Facility Atterbury Reserve Forces Training Area Edinburgh, Indiana

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U.S. ARMY ENVIRONMENTAL CENTER
Aberdeen Proving Ground
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PRELIMINARY ASSESSMENT OF THE ARMY NATIONAL GUARD FACILITY ATTERBURY RESERVE FORCES TRAINING AREA EDINBURGH, INDIANA

Contract Number DAAA-15-90-D-0009

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Under contract with the U.S. Army Environmental Center (USAEC), Roy F. Weston, Inc. (WESTON®) conducted a Preliminary Assessment (PA) at the U.S. Army National Guard Atterbury Reserve Training Area (ARFTA) in Edinburgh, IN. The purpose of this PA was to collect information concerning conditions at ARFTA sufficient to assess potential threats posed to human health and the environment and to determine the need for additional investigation. No environmental sampling was conducted as part of this PA. The scope of this PA focused on a review of existing information, including analytical results from sampling of groundwater, surface water, and soil. No groundwater contamination has been identified in the vicinity of the Old Landfill or other potential source areas. Surface water and runoff that discharge into the Driftwood River from a number of outfalls have been found to contain background levels for the analytes tested. Subsurface soils associated with the Old Landfill are suspected to contain organic and inorganic contaminants, although no data are known to exist. Other potential source areas include two large munitions impact areas and a battery acid disposal area.

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LIST OF ACRONYMS AND ABBREVIATIONS

AEC	U.S. Army Environmental Center
AEHA	U.S. Army Environmental Hygiene Agency
ANG	Air National Guard
ARCOM	Army Reserve Command
ARFTA	Atterbury Reserve Forces Training Area
ARNG	Army National Guard
BNA	base/neutral and acid extractable organics
bgs	below ground surface
BOD	biological oxygen demand
CAIS	Chemical Agent Identification Set
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund)
cm/s	centimeters per second
COD	chemical oxygen demand
DNR	Department of Natural Resources
DOD	Department of Defense
DOI	U.S. Department of Interior
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FORSCOM	U.S. Army Forces Command
ft	feet
ft^2	square feet
ft^3/s	cubic feet per second
FWS	U.S. Fish and Wildlife Service
GEMS	Graphical Exposure Modeling System
IDEM	Indiana Department of Environmental Management
IDNR	Indiana Department of Natural Resources
IRP	Installation Restoration Program
gpm	gallons per minute
MACOM	Major Command
MCLs	maximum contaminant levels
MSDS	Material Safety Data Sheet
MSL	mean sea level
NGB	National Guard Bureau
NPDES	National Pollutant Discharge Elimination System
OMS	Organizational Maintenance Shop
PA	Preliminary Assessment
PCBs	polychlorinated biphenyls
pH	hydrogen ion concentration
POL	petroleum, oils, and lubricants
POW	Prisoner of War
ppb	parts per billion
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act of 1986

LIST OF ACRONYMS AND ABBREVIATIONS
(Continued)

SDWA	Safe Drinking Water Act
TAL	Target Analyte List
TCL	Target Compound List
TDS	total dissolved solids
TOC	total organic carbon
TPH	total petroleum hydrocarbons
USACE	U.S. Army Corps of Engineers
USAR	U.S. Army Reserve
USGS	U.S. Geological Survey
UST	underground storage tank
UTES	Unit Training Equipment Site
UXO	unexploded ordnance
WESTON	Roy F. Weston, Inc.

EXECUTIVE SUMMARY

A. INTRODUCTION

Under contract with the U.S. Army Environmental Center (AEC), Roy F. Weston, Inc. (WESTON®) conducted a Preliminary Assessment (PA) at the Atterbury Reserve Forces Training Area (ARFTA).

The PA included the following activities:

- An on-site visit, including interviews with personnel familiar with Camp operations and history, and field surveys by WESTON representatives during the week of 22 March 1993.
- Acquisition and analysis of information on past hazardous materials use, waste generation, and waste disposal at the Camp.
- Acquisition and analysis of available geological, hydrogeological, meteorological, and environmental data from federal, state, and local agencies.
- The identification and assessment of sites at the Camp that may have been contaminated with hazardous wastes.

B. MAJOR FINDINGS

There are nine potential waste source areas at ARFTA. These are the Old Landfill, Impact Area, Air-to-Ground Impact Range, Battery Acid Disposal Areas, Suspected Agent Burning Area, Chemical Agent Identification Set (CAIS) Area, Suspected Polychlorinated Biphenyl (PCB) Transformers, Underground Storage Tanks (USTs), and Vehicle Wash Racks. Operations and activities that have or may have involved the use of hazardous materials and/or the disposal of hazardous wastes include vehicle maintenance, landfill operations, and troop weapons testing.

C. CONCLUSIONS

The following conclusions resulted from this assessment:

- Existing groundwater data of monitoring wells around the New Landfill and from nearby municipal wells indicate no significant contamination from the site.
- There are no downstream surface water intakes currently in use within the 15-mile downstream surface water pathway and existing data shows no environmental impacts to surface water from the Camp.
- Only limited investigation has been performed at ARFTA for possible impacts to soil. No significant concentrations of contaminants were found.
- Visual inspection during the site walk-through uncovered no evidence suggesting a negative impact to air from site activities.

D. RECOMMENDATIONS

Further work is recommended for Camp source areas to determine the presence or absence of contamination.

SECTION 1
INTRODUCTION

Under contract with the U.S. Army Environmental Center (AEC), Roy F. Weston, Inc. (WESTON®) conducted a Preliminary Assessment (PA) at the Atterbury Reserve Forces Training Area (ARFTA) consistent with the guidelines found in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund) (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA). The purpose of this investigation was to collect information concerning conditions at ARFTA sufficient to assess potential threats posed to human health and/or the environment and to determine the need for additional investigation. No sampling activities were included in this investigation. A completed EPA Preliminary Assessment Form is provided in Appendix D of this report.

SECTION 2
SITE DESCRIPTION

2.1 LOCATION

The Army National Guard (ARNG) ARFTA is located in south-central Indiana approximately 35 miles south-southeast of Indianapolis, IN (see Figure 2-1). The nearest community, Edinburgh, IN, is located adjacent to the eastern post boundary. ARFTA property consists of approximately 33,000 acres (approximately 6 miles wide by 10 miles long) and lies in the three counties of Bartholomew, Brown, and Johnson. ARFTA is bounded on the east by U.S. Highway 1, on the south by State Road 46, on the west by State Road 135, and on the north by State Road 252. The geographic coordinates of ARFTA property are reported to be 39 21'00" N latitude and 86 02'00" W longitude, though in reality, the property spans more than 7 minutes latitude and more than 5 minutes longitude.

2.2 SITE DESCRIPTION

The primary function of ARFTA is to provide a weekend and annual training site for the ARNG. ARFTA's mission is to provide housing and training areas for units as large as a brigade in size with its normal division and corps-supporting elements (ARFTA, 1993). A variety of ranges for weapons such as machine gun, grenade, mortar, artillery, flame thrower, tank, helicopter gunnery, and aircraft bombing are present at the site. ARFTA can be broken into four major subareas:

- Cantonment Area — 640 acres.
- Impact Area — 6,000 acres.
- Ammunition Storage Area — 350 acres.
- Training Area — 26,150 acres.

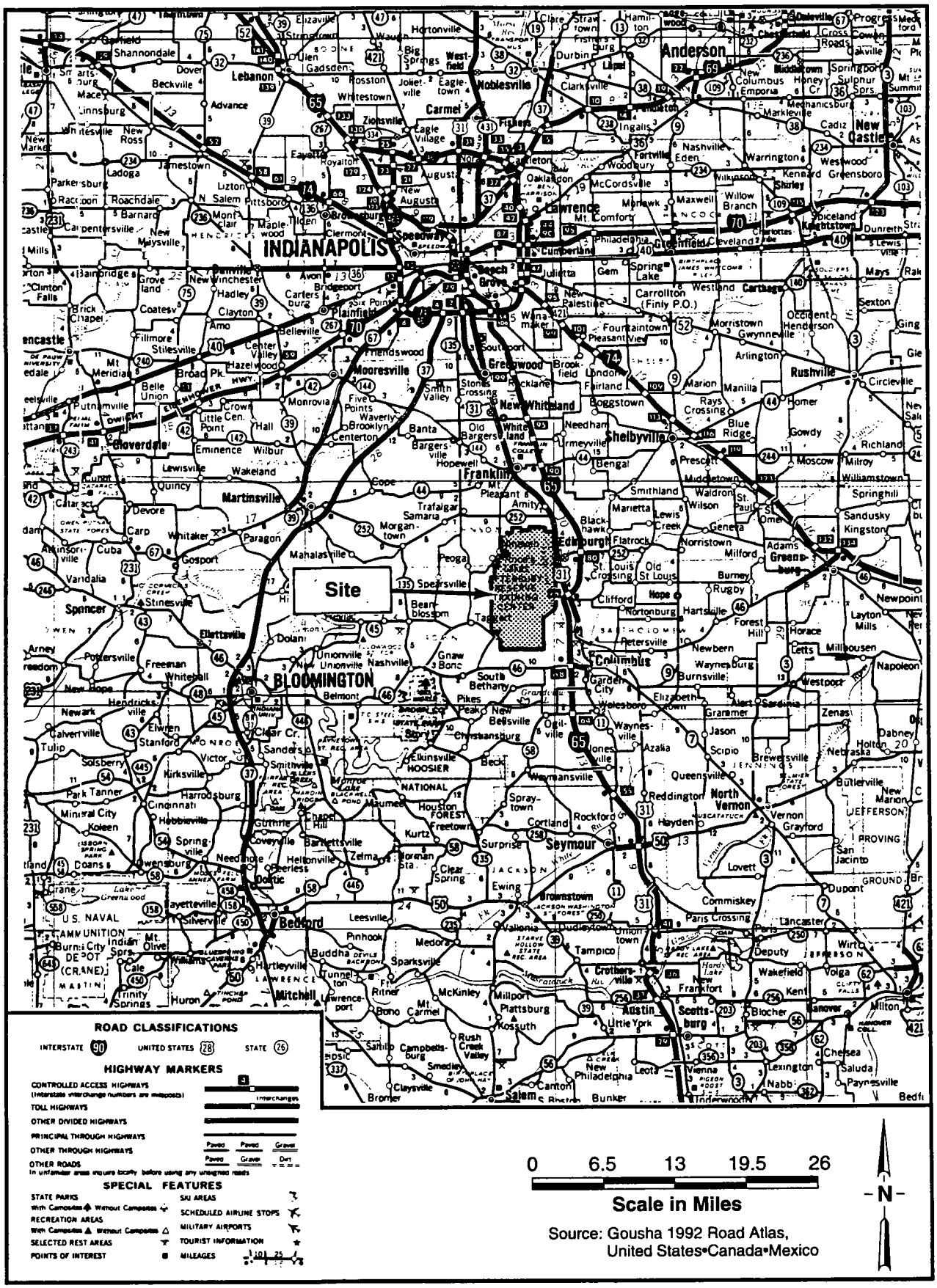


FIGURE 2-1 PROPERTY LOCATION MAP, ATTERBURY RESERVE FORCES TRAINING AREA, EDINBURGH, INDIANA

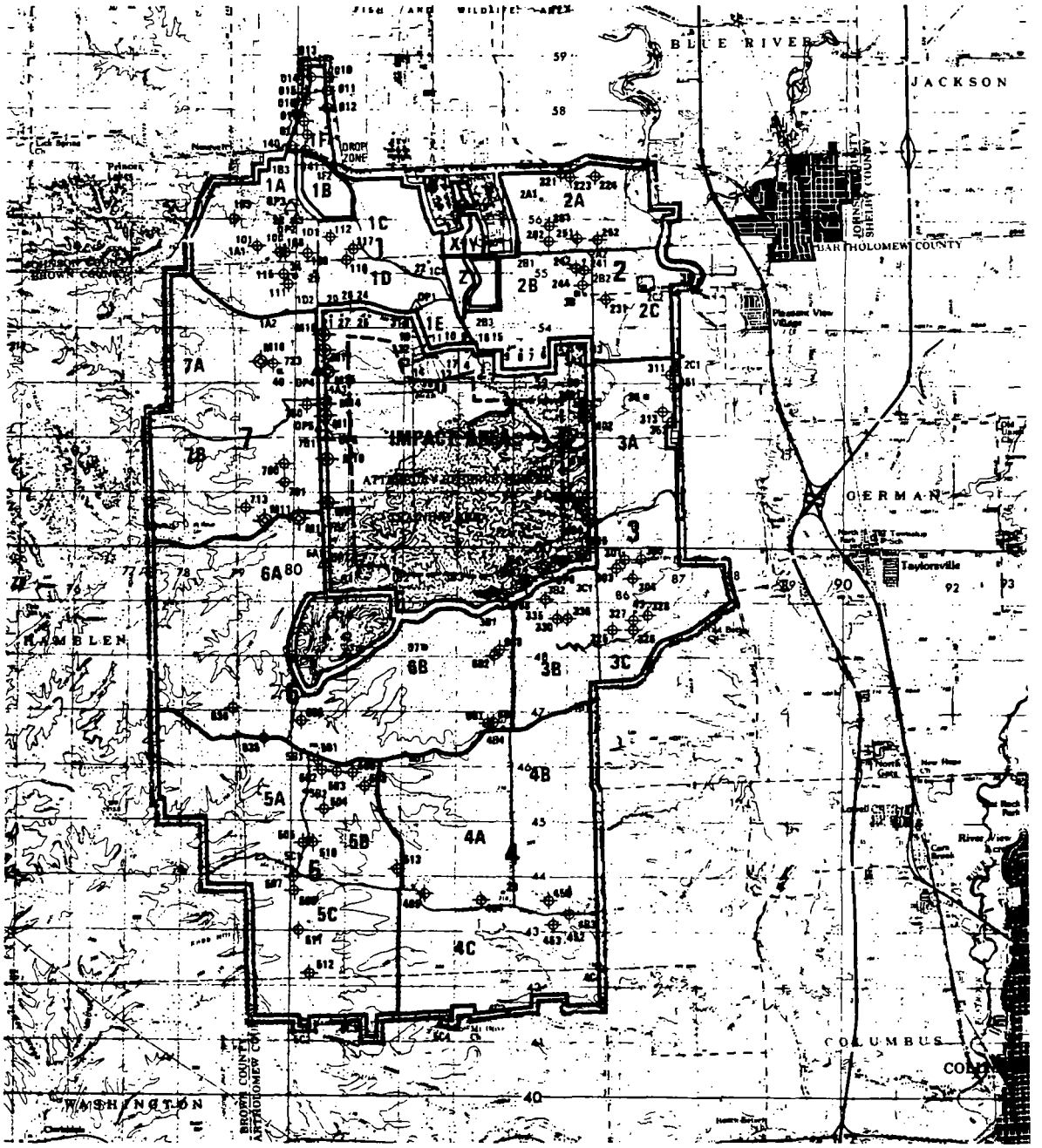
Approximately 9,000 acres, north of Hospital Road, are currently being leased from the U.S. Department of the Army. These 9,000 acres are not within the scope of this inspection. There are also areas deeded to Indiana Department of Natural Resources (IDNR), Indiana Department of Labor, Johnson County Department of Parks and Recreation, and Indiana Department of Corrections. Figure 2-2 shows the installation property.

2.3 INSTALLATION HISTORY

Camp Atterbury was opened in August 1942 as a training site for the 83rd Infantry Division. During World War II, Camp Atterbury was used to train more than 100 U.S. Army units and was used as a Prisoner of War (POW) Internment Camp for German and Italian POWs. Towards the end of World War II, Camp Atterbury was used as a separation center for veterans. In 1946, Camp Atterbury was deactivated. In 1950, Camp Atterbury was reactivated for training of the 28th and 31st Infantry Divisions.

Camp Atterbury was used to train ARNG and U.S. Army Reserve troops from 1954 through 1968. During this period the camp was also used by Department of Defense (DOD) contractors as a testing and monitoring site. In 1958, the Indiana Air National Guard (ANG) established an Air-to-Ground Gunnery Range that still operates today. In 1965, the Indiana National Guard Officers Candidate School was moved to Camp Atterbury.

In 1968, the Department of the Army determined that portions of Camp Atterbury property were no longer required for Army use. Out of the 40,000 acres originally comprising Camp Atterbury, approximately 7,000 acres were sold. In January 1969, the Department of the Army changed the name of Camp Atterbury Military Reservation to ARFTA. In April 1969, the Secretary of the Army issued a license to the Indiana National Guard for 33,141.76 acres that was renewable every 5 years until 1982. In 1982, the license was made for a period of 25 years. In 1988, the license was amended to be valid for an indefinite period of time.



Source: Atterbury Reserve Forces Training Area Military Installation Map

FIGURE 2-2 ARFTA INSTALLATION MAP

During the period from 1969 to 1984, ARFTA was operated by the Military Department of Indiana under National Guard Bureau and was a subpost of Fort Benjamin Harrison. This subpost arrangement was changed in October 1984 to a separate and standalone installation under the U.S. Army Forces Command (FORSCOM) with the National Guard Bureau remaining the peacetime Major Command (MACOM).

SECTION 3
PREVIOUS INVESTIGATIONS

Following a review of facility records and interviews with site personnel, it was determined that several previous investigations have been performed at ARFTA. These investigations include the following:

- Potable/Recreational Water Quality Engineering Survey No. 31-61-0163-87 (AEHA, 1986).
- Groundwater Contamination Survey No. 38-26-0835-88 (AEHA, 1987).
- Post Maintenance Areas and Ditch Systems Sampling Investigation (A&W, 1992).
- Stream Survey/Shop Discharge Sampling Investigation (A&W, 1992).

The following text briefly summarizes the purpose and conclusions of these investigations.

3.1 POTABLE/RECREATIONAL WATER QUALITY ENGINEERING SURVEY NO. 31-61-0163-87

A potable/recreational water quality survey was performed by the U.S. Army Environmental Hygiene Agency (AEHA) in August 1986. The purpose of the survey was to investigate ARFTA's potable water systems, recreational waters, and swimming pools, and the quality of these waters. The survey concluded that an ample storage of potable water was maintained by the local utility to provide fire protection; however, the quality of the water for potable purposes was unknown.

3.2 GROUNDWATER CONTAMINATION SURVEY NO. 38-26-0835-88

A groundwater contamination survey was performed by AEHA in July 1987. The purpose of the survey was to investigate and identify potential sources or sites that could be a high risk to groundwater quality at ARFTA. The survey concluded that elevated chemical oxygen

demand (COD) levels in groundwater samples collected at the sanitary landfill indicate the possible presence of priority pollutants.

3.3 POST MAINTENANCE AREAS AND DITCH SYSTEMS SAMPLING INVESTIGATION - PROJECT NO. N2312

Subsurface soil sampling and analysis of post maintenance areas and ditch systems was performed by Alt & Witzig Engineering, Inc. in July 1992. The purpose of the investigation was to collect and analyze soil samples from maintenance areas and ditch systems to determine the potential impact of petroleum and heavy metal contamination on these areas. A total of 12 shallow soil borings were advanced to 4 feet (ft) below ground surface (bgs), and a composite sample from each boring from 6 inches to 4 ft was collected. Figure 3-1 presents sampling locations. The investigation concluded that low levels of cadmium, chromium, lead, and total petroleum hydrocarbons (TPH) are present at the site, but the levels detected pose only a minimal risk to the environment or human health. No QA/QC data are available for this study (Orr, 1993).

3.4 STREAM SURVEY/SHOP DISCHARGE SAMPLING INVESTIGATION - PROJECT NO. N2310.

Water sampling and analysis of drainage ditches and streams was performed by Alt & Witzig Engineering, Inc. in August 1992. The purpose of the investigation was to collect and analyze water samples to determine the water quality characteristics of designated drainage ditches and streams at the site. Eighteen locations were sampled for pH, BOD, suspended solids, phosphates, nitrate, oil and grease, nitrogen ammonia, total Kjeldahl nitrogen, COD, and benzene. Figures 3-2 and 3-3 present sampling locations. With the exception of two parameters, the investigation concluded that the tested parameters were generally within established background levels for the East Fork of the White River near Columbus, IN; however, no QA/QC data are available (Orr, 1993). An exception was the elevated levels of COD that were found at nine locations. The report concludes that the elevated COD levels were attributable to the high rainfall and associated runoff during the day of the sampling. (No potential sources were attributed to these results.) The other exception was

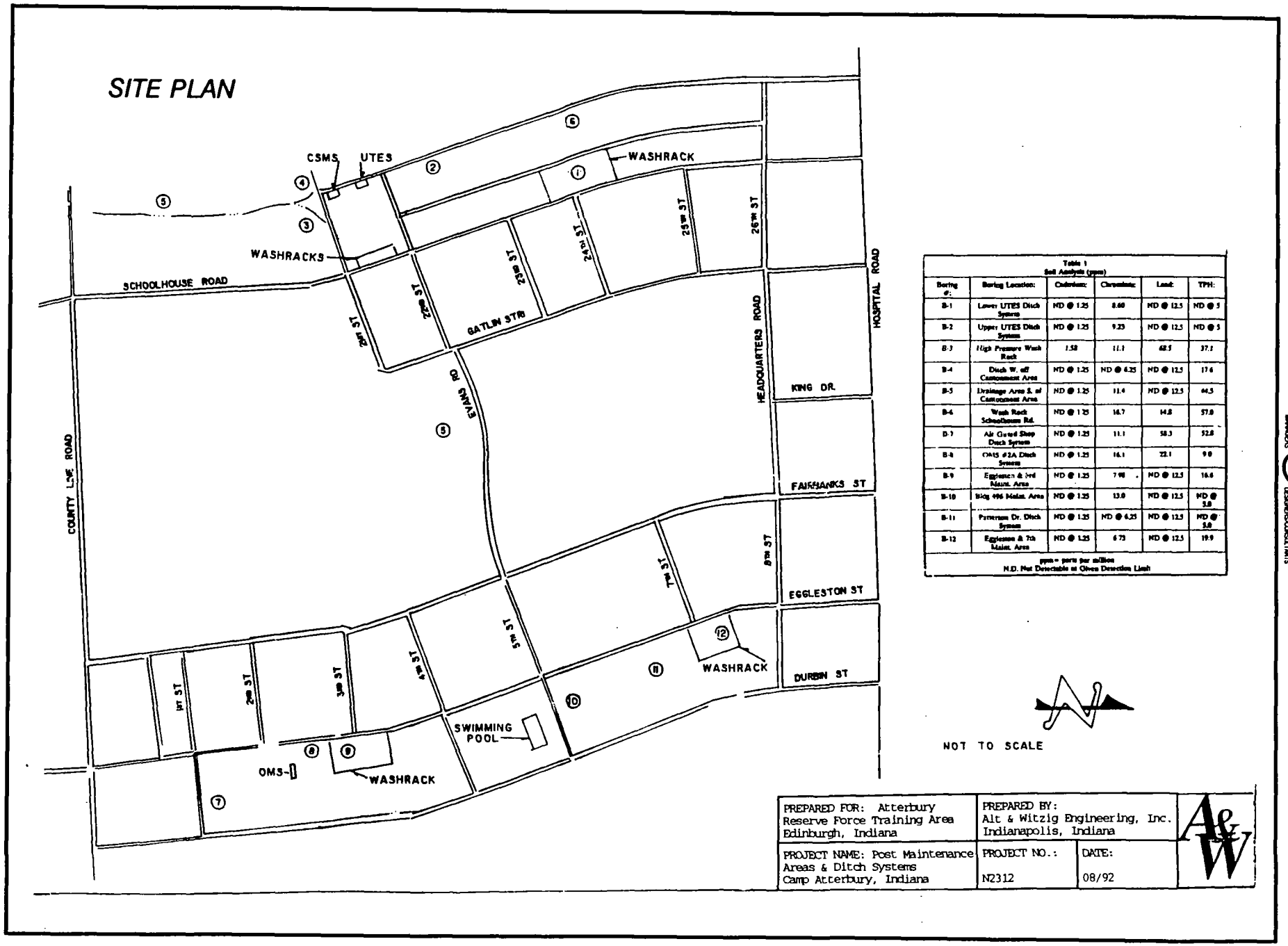


Table 1
Soil Analysis (ppm)

Boring #:	Boring Location:	Cadmium:	Chromium:	Lead:	TPH:
B-1	Lower UTES Ditch System	ND @ 1.25	8.60	ND @ 12.5	ND @ 5
B-2	Upper UTES Ditch System	ND @ 1.25	9.25	ND @ 12.5	ND @ 5
B-3	High Pressure Wash Rack	1.58	11.1	68.5	37.1
B-4	Ditch W. of Cantonment Area	ND @ 1.25	ND @ 6.25	ND @ 12.5	17.6
B-5	Drainage Area S. of Cantonment Area	ND @ 1.25	11.4	ND @ 12.5	44.5
B-6	Wash Rack Schoolhouse Rd.	ND @ 1.25	16.7	14.8	57.8
B-7	Air Guard Shop Ditch System	ND @ 1.25	11.1	58.3	52.8
B-8	OMS #2A Ditch System	ND @ 1.25	16.1	22.1	9.8
B-9	Eggleston & 3rd Maint. Area	ND @ 1.25	7.98	ND @ 12.5	16.6
B-10	Bldg 496 Maint. Area	ND @ 1.25	13.0	ND @ 12.5	ND @ 5.0
B-11	Patterson Dr. Ditch System	ND @ 1.25	ND @ 6.25	ND @ 12.5	ND @ 5.0
B-12	Eggleston & 7th Maint. Area	ND @ 1.25	6.73	ND @ 12.5	19.9

ppm = parts per million
N.D. Not Detectable at Given Detection Limit

FIGURE 3-1 ALT & WITZIG SOIL SAMPLING LOCATIONS

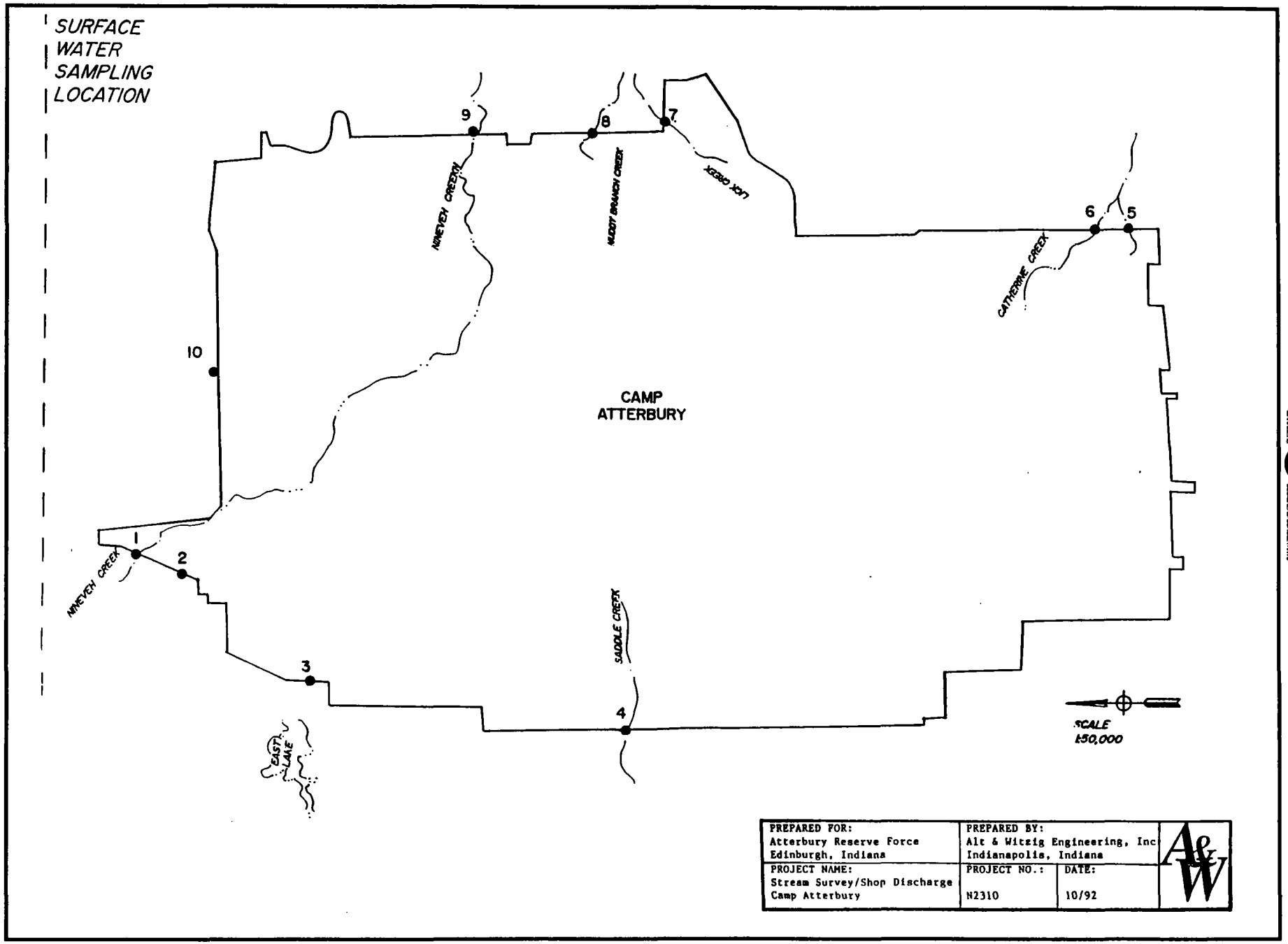
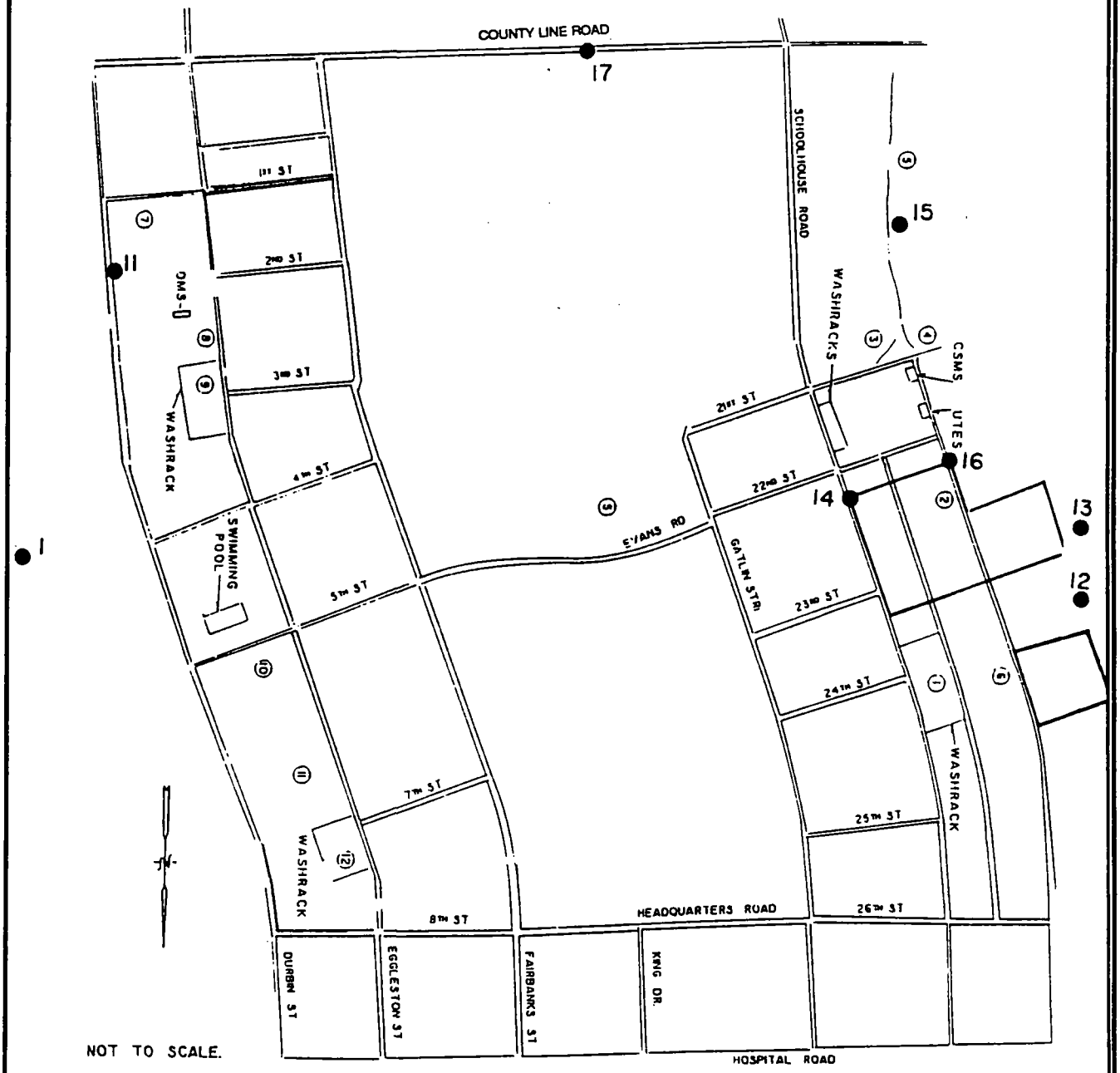


FIGURE 3-2 ALT & WITZIG STREAM SAMPLING LOCATIONS



PREPARED FOR: Atterbury Reservce Force Edinburgh, Indiana		PREPARED BY: Alt & Witzig Engineering, Inc. Indianapolis, Indiana	
PROJECT NAME Stream Survey/Shop Discharge Camp Atterbury		PROJECT NO N2310	DATE 10/92

FIGURE 3-3 ALT & WITZIG SHOP DISCHARGE SAMPLING LOCATIONS

the elevated BOD at one sampling location. The report could not attribute this result to a definitive cause, but surmised that it could be naturally occurring.

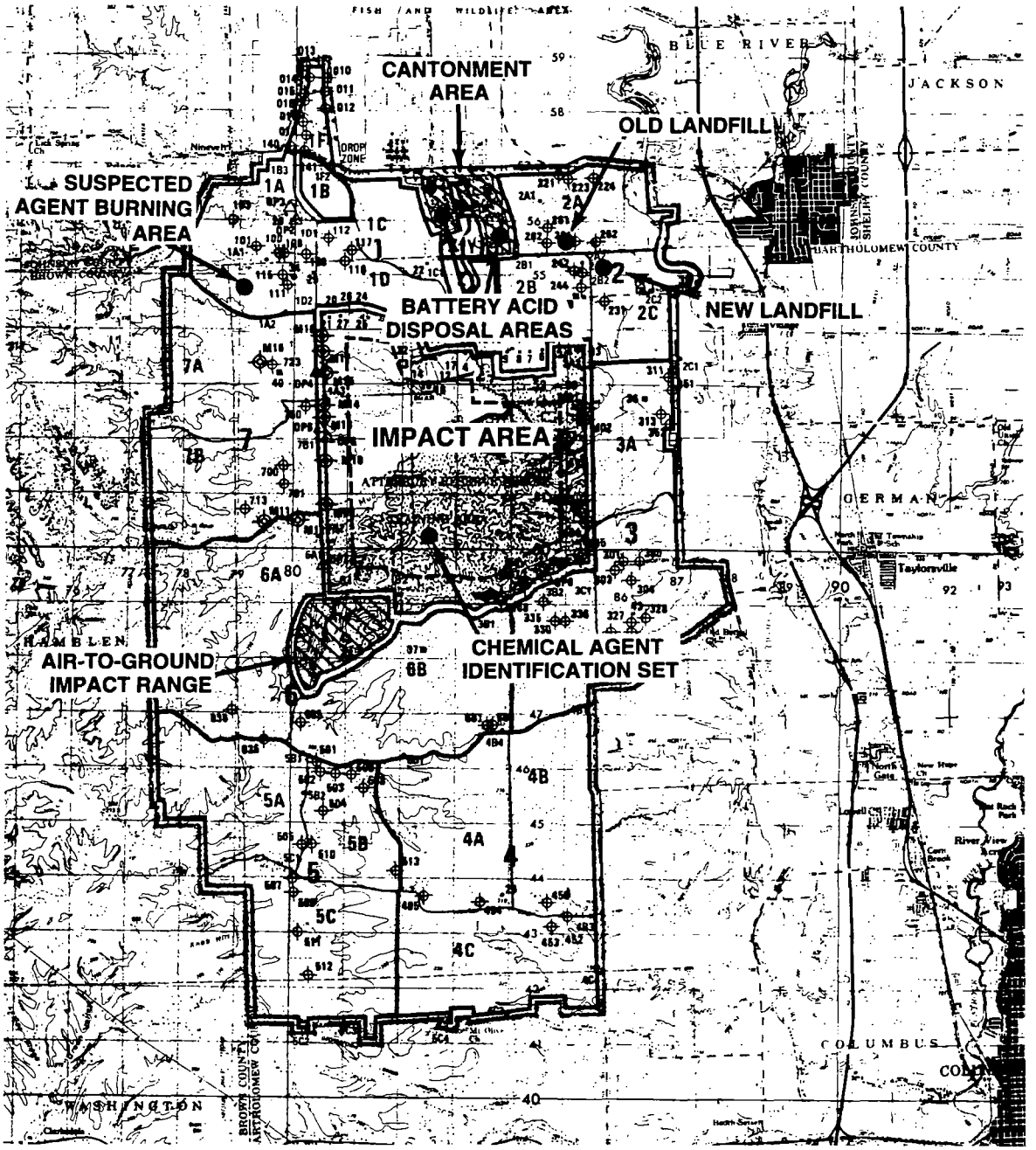
SECTION 4
WASTE/SOURCE CHARACTERISTICS

Nine potential source areas were identified at ARFTA. The map in Figure 4-1 provides locations for these areas (transformer and UST locations are not shown). The following subsections briefly describe each potential source area.

4.1 OLD AND NEW LANDFILLS

One old and one new landfill are located on ARFTA facility property. The Old Landfill, started in 1969, is located north of the intersection of County Line Road and Mauxferry Road. However, its exact coordinates are unknown because it is in a wooded area. Limited information exists on the contents or construction of the Old Landfill. The footprint of the Old Landfill is estimated to be approximately 900 ft by 300 ft. Based on interviews with site personnel, a variety of wastes were likely deposited there. These wastes include POL wastes, asbestos (brake linings and transite tiles), pentachlorophenol (treated wooden boxes), solvents (painting, maintenance, etc.), and other miscellaneous wastes. Although a large Army hospital operated for many years just north of Hospital Road (just north of the Contonment Area), it is believed that no hospital wastes were deposited in the landfill because the hospital ceased operation in 1958, 10 years prior to initial operation of the Old Landfill (Engleking, 1993). The Old Landfill is presumed to be unlined.

The new landfill is no longer in use and is currently undergoing Resource Conservation and Recovery Act (RCRA) closure. The new landfill is located approximately 1/2 mile southeast of the Old Landfill, on Mauxferry Road. Five 2-inch-diameter groundwater monitoring wells were installed in 1981 by AEHA to monitor the groundwater upgradient and downgradient of the New Landfill. A map showing the monitoring well locations at the New Landfill is included in Appendix A, Analytical Results — New Landfill Monitoring Wells.



Source: Atterbury Reserve Forces Training Area Military Installation Map

FIGURE 4-1 ARFTA POTENTIAL SOURCE AREAS

4.2 IMPACT AREA

An impact area approximately 6,000 acres in size is operated in the north-central area of ARFTA. This area is used extensively for troop weapons training. A wide variety of weapons are fired into this area, from small arms to heavy artillery. The area is fenced, posted, and continuously monitored. Access is restricted and controlled. Particularly heavy use was made of the 2-3 acre area surrounding Puff Lake in the southern portion of the area.

Potential materials and contaminants of concern include UXO, white phosphorus, heavy metals (i.e., lead and explosive compounds). Contamination is presumed to be present in shallow surface soils due to the nature of the materials and their mode of placement. Shallow craters can be seen throughout the area. Contamination may also be present in drainageways in this area.

The firing of white phosphorus rounds over wetlands in the Impact Area has been suspended due to concern over phosphorus-related water fowl mortality. According to the National Guard, white phosphorus was not extensively fired at Camp Atterbury.

4.3 AIR-TO-GROUND IMPACT RANGE

In 1958, the Indiana ANG established the Air-to-Ground Gunnery Range, which currently operates today. The range is located adjacent to the southwest edge of the Impact Area and is operated in the same fashion. Access is strictly controlled.

Similar to the Impact Area, potential materials/contaminants of concern include UXO, white (i.e., unreacted) phosphorus, explosive compounds and possibly heavy metals. Contamination in this area may be found at greater depths due to the high velocities involved in the operations practiced there. Similarly, contamination may be found in Range drainageways.

4.4 BATTERY ACID DISPOSAL AREAS

Two battery acid disposal areas were operated in the Cantonment Area of ARFTA. One area was in the Organizational Maintenance Shop-2A (OMS-2A). Within the acid storage area of OMS-2A a sink is present that discharges to the ground outside and nearby (within 50 ft). This surface discharge was the sole outlet for piping from the sink. During trenching activities nearby stained soils were identified, both at the surface and 6 to 8 ft bgs at this discharge point. It is believed that wet lead/acid batteries from motorized vehicles were drained into this area. A second battery acid disposal area is located in the Old Unit Training Equipment Site (UTES). In this area, wet lead/acid batteries from motorized vehicles were drained into an unlined pit approximately 3 ft in diameter and less than 1 ft deep. Acid neutralization was not performed in this pit. Eventually, this practice was halted and battery acids were deposited into a tank, neutralized, and discharged to a nearby ditch that runs along the southern boundary of the Old UTES Area. The common electrolyte used in these lead/acid batteries is sulfuric acid.

Battery draining activities in other areas of ARFTA utilized tanks where the acid was neutralized with baking soda prior to being discharged to the sewer system.

4.5 SUSPECTED AGENT BURNING AREA

In an area approximately 1/2 mile due west of the Impact Area's northwest corner, twenty-five (25) 1-gallon cans of an unknown material were allegedly burned. The date of this activity was between 1968 and 1970. This material is suspected to be a chemical warfare agent or support material classified under the Army Chemical Assurity Program (Orr, 1993). Following standard protocols, it is believed that this material was poured into burn buckets, mixed with gasoline, and burned. Some materials may have been placed on the ground and burned. A soil sampling program is currently being formulated to address this area. Under this program, samples will be collected and analyzed for pure materials and combustion and hydrolysis breakdown products, including a number of ethyl and chloroethyl sulfide products,

1,4-dithiane, and other common chlorinated materials, including methylene chloride, chloroform, and 1-1-1 TCA.

4.6 CHEMICAL AGENT IDENTIFICATION SET (CAIS) AREA

A steel canister containing glass vials was found in the southeast portion of the Impact Area just north of the Air-to-Ground Range. The canister is believed to have been a World War II era CAIS (TM 3-500, 1959). These sets were used to train personnel in the detection and recognition of chemical warfare agents. The standard procedure for disposal of such an item was detonation with explosives. This canister was similarly destroyed after discovery. The area lies within the boundaries of the Impact Area and is currently restricted.

4.7 SUSPECTED POLYCHLORINATED BIPHENYL (PCB) TRANSFORMERS

A total of eight suspected PCB-containing transformers were present at ARFTA. Seven were replaced and the remaining one was being tested by the owner. The transformers, which are owned and operated by Public Service Indiana, are located in the Cantonment Area on utility poles, and plant personnel indicate there has been no leakage of oils from these transformers. The transformer locations within the Cantonment Area are:

- Across Harrison Street from Building 124.
- Between Buildings 85 and 86.
- Between Buildings 40 and 41.
- Adjacent to Building 524.
- Adjacent to Building 25.
- Between Schoolhouse Road and Gatling Street.
- Adjacent to Building 5B.
- Adjacent to Building 120.

There is no record of a PCB spill on ARFTA property.

4.8 USTs

A total of approximately 11 USTs are located on ARFTA property. The tanks are used for the storage of fuels and waste oils. All fuel tanks (gasoline and diesel) have been leak-tested and are tested annually. The waste oil tanks are scheduled to be removed under an ongoing site program (Orr, 1993).

4.9 VEHICLE WASH RACKS

A total of four vehicle wash rack stalls are located on ARFTA property. These wash racks are used to wash Army vehicles on a regular basis. Two of the wash racks are used to remove dirt and mud from vehicle bodies and tracks, are not equipped with oil/water separators, and discharge the muddy waters directly to drainage ditches on-site. Two other wash racks are used to more completely service Army vehicles. The discharge from these wash racks may contain used oil, fuels, antifreeze and grease. Oil/water separators intercept these wastewaters and effectively remove oil from the wastewater stream prior to the discharge of water to the sanitary sewer system. Waste oil is containerized and removed from the site by a waste hauler. Oil/water separators are currently under design for installation at the wash racks in the summer of 1993.

The potential exists for overflow of the oil/water separators and contamination of surrounding soils, although no reports of such overflows have been reported and site soils in the vicinities do not appear to be impacted by the separators directly. Stained soils, unrelated to the oil/water separator operation, are present at many of the wash racks.

SECTION 5
GROUNDWATER PATHWAY

5.1 HYDROGEOLOGIC SETTING

The following information was obtained from documents of the Indiana State Geological Survey and the U.S. Geological Survey (USGS).

Camp Atterbury is located in the Central Glaciated Plains hydrogeologic region (Krothe and Kempton, 1988) on the west flank of the Cincinnati Arch (Gray et al., 1987). The rocks dip south-southwest at less than one degree (Gray et al., 1987). The hydrogeologic setting of this region includes areas of both thin and thick Pleistocene glacial drift, consisting of unconsolidated till, silt, clay, sand, and gravel, deposited on sedimentary bedrock.

The site is also located in the Norman Upland and Scottsburg Lowland physiographic provinces (Davis et al., 1969). The Norman Upland is a plateau characterized by flat-topped uplands, steep slopes, dense surface drainage, and deep V-shaped valleys (Davis et al., 1969). The stratigraphy of the Norman Upland, as determined from well logs, consists primarily of clay derived from weathering of the bedrock overlying the shales and sandstones of the Borden Group (Davis et al., 1969). Groundwater is obtained from deep wells in the Norman Upland, but its presence is governed by the presence of connected joints and fractures in the underlying rock. The Norman Upland is separated from the Scottsburg Lowland to the east by the Knobstone Escarpment (Davis et al., 1969).

The Scottsburg Lowland is a strike valley that trends north-northwest/south-southeast. It is underlain by weakly resistant Devonian shales; the irregular bedrock surface is mantled by glacial deposits that are locally more than 100 ft thick (Davis et al., 1969). The stratigraphy of the Scottsburg Lowland differs from that of the Norman Upland in that it consists of glacial deposits that fill a paleovalley carved into the New Albany shale (Davis et al., 1969). The glacial deposits are generally a sandy clay at the surface, becoming coarser with depth.

Strata within Camp Atterbury include, from youngest to oldest:

- The Martinsville Formation, which consists of modern alluvial deposits locally mixed with some colluvial and paludal deposits. The hydraulic conductivity for this unit is estimated to be in the range of 10^{-3} to 10 centimeters per second (cm/s) (Freeze and Cherry, 1979, Table 2-2, p. 29).

- Quaternary glacial materials that were deposited during multiple glaciations of the late Pleistocene comprise the surficial deposits of this area. The thickness of the Quaternary deposits ranges from zero on the Norman Upland to >150 ft in the Scottsburg Lowland (Gray, 1983, and Gray et.al., 1979). Included in the Quaternary units are: the Atherton Formation, which consists of valley train deposits; the Trafalgar Formation, a compact, calcareous till of Wisconsinan age found in areas of morainal topography; and the Jessup Formation, predominantly ice-contact stratified drift. These deposits constitute fill material in a paleovalley within the Scottsburg Lowland and are the primary source of groundwater in the vicinity of Camp Atterbury (Watkins and Heisel, 1970). Well depths in the valley fill are typically less than 100 ft. Well yields within this aquifer range from 100 gallon per minute (gpm) along the western edge where sediments are thin, to 1,000 gpm at the center of the valley (Clark, 1980). The hydraulic conductivity has an estimated range of 10^{-5} to 10 cm/s (Freeze and Cherry, 1979, Table 2-2, p. 29). Based on an estimated hydraulic conductivity of 10^{-2} cm/s, average groundwater velocity is calculated to be 2.4×10^{-5} cm/s.

- The Borden Group, of Lower Mississippian age, consists of siltstone, shale, and sandstone with thin limestone layers. Joint orientation is predominantly east-west, with a weaker north-northeast/south-southwest orientation present (Ault, 1989). The unit exhibits low transmissivity due to the fine-grained nature of the material, but water may be obtained from fractures in the rock. Wells depths in this unit range from 75 to 315 ft bgs, based on driller logs provided by the Indiana Division of Water Resources. Well yields range from approximately 2 gpm in the shale to 6 to 10 gpm in sandstones (well logs, Indiana Division of Water Resources). The hydraulic conductivity ranges from 10^{-11} to 10^{-7} cm/s (Freeze and Cherry, 1979, Table 2-2, p. 29).

- New Albany shale, a black and greenish-gray shale containing much organic matter and minor amounts of dolomite and dolomitic quartz sandstone. The unit is divided into five members, which include, from oldest to youngest: the Blocher Member, a calcareous to dolomitic pyritic shale rich in organic matter; the Selmier Member, a greenish-gray mudstone; the Morgan Trail Member, a black fissile siliceous pyritic shale; the Camp Run Member, which consists of alternating greenish-gray mudstone and black shale; and the Clegg Creek Member, a black silty or dolomitic pyritic shale. The New Albany shale in Indiana consists primarily of the Blocher and Selmier Members (Shaver et al., 1970). At Camp Atterbury, the unit ranges in thickness from approximately 100 to 110 ft (Lineback, 1970). Joint orientation within the

unit is predominantly northwest-southeast. As with the Borden Group, transmissivity is low due to the fine-grained nature of the materials, but some water may be obtained from joints in the rock. The hydraulic conductivity of the New Albany Shale has an estimated range of 10^{-11} to 10^{-7} cm/s (Freeze and Cherry, 1979, Table 2-2, p. 29).

Groundwater flow in the vicinity of the site, based on static water levels obtained from well logs from the Indiana Department of Conservation, Division of Water Resources, is to the east-southeast toward the Driftwood River (Groundwater Monitoring Logs, 1992). The shallow depth to water within the valley fill aquifer east of the site, and the groundwater flow direction within the aquifer, suggest hydraulic communication between the groundwater and surface water. Recharge occurs both from the local fluvial system and directly by precipitation. The net precipitation at the camp was estimated to be 3 inches. Heath (1984) estimated groundwater recharge in the Central Glaciated region to range from 0.2 to 2.0 m^3/min. Based on descriptions of the underlying bedrock units, there is hydraulic communication between the valley fill and the bedrock via joints and fractures in the rock. Recharge to the bedrock is through infiltration from the overburden, either glacial or fluvial. There are no karstic characteristics present.

5.2 TARGETS

Most people within a 4-mile radius obtain their drinking water from three municipal well supply systems. These systems include: Princess Lake Utilities, Edinburgh Utilities, and Eastern Bartholomew Utilities. The Princess Lakes system consists of nine deep wells screened between 90 and 106 feet: three within a 2-mile radius, four within a 2- to 3-mile radius, and two within a 3- to 4-mile radius of a potential contamination source. Princess Lakes services the population of Camp Atterbury, the Cordry/Sweetwater area (1,000 service meters), and various agricultural/ livestock users (200 service meters). The Edinburgh Utilities system consists of four wells (screened between approximately 100 and 120 feet) within a 2- to 3-mile radius of a potential contamination source. The Edinburgh system serves approximately 5,000 people. The Eastern Bartholomew system consists of two wells (screened between 115 and 135 feet) within a 2- to 3-mile radius of a potential contamination source and services the eastern half of Bartholomew County into Jennings

County (approximately 2,300 households). Attachment 1 to this report shows the target (radii) rings around the site.

In determining the population served by wells within each ring (i.e., 1- to 2-mile, 2- to 3-mile, etc.), three assumptions are made. These assumptions are: 1) that there is one service meter per household; 2) that there are an estimated 2.3 persons per household (Bloomer, 1993); and 3) equal yield and use of the Princess Lakes wells. Taking into account these assumptions, approximately 1,200 persons are served by wells located within a 1- to 2-mile radius, 12,000 persons are served by wells within a 2- to 3-mile radius, and 800 persons are served by wells within a 3- to 4-mile radius of a potential source area. No wells were identified within 1 mile of a potential source area.

According to DNR records, there are approximately 200 to 300 private drinking water wells within a 4-mile radius of the site. However, these wells are believed to represent only 1/3 of the total private wells within 4 miles; the remaining are not listed with the state. The nearest suspected private drinking water well is located off Wallace Road, approximately 1 mile from the New Landfill. There are no federally designated wellhead protection areas within the 4-mile target area of the site.

5.3 SAMPLE LOCATIONS

No sampling activities were conducted as part of this PA. A review of available site records indicates that five (5) 2-inch-diameter groundwater monitoring wells (one upgradient and four downgradient) are present at the New Landfill. The wells, installed in 1981 by AEHA, were first sampled quarterly for the following parameters: dissolved iron, pH, chloride, total dissolved solids (TDS), COD, total hardness, and total organic carbon (TOC). In December 1992, samples from the five landfill wells were analyzed for volatile organic parameters. A map showing the monitoring well locations at the New Landfill is included in Appendix A, Analytical Results - New Landfill Monitoring Wells.

Under state and federal law, the municipal supply well systems mentioned above are required to be sampled and analyzed for certain parameters to ensure that no contamination is present in the drinking water. Analytical results are summarized in Subsection 5.4.

5.4 ANALYTICAL RESULTS

A review of quarterly landfill monitoring well analytical results from 26 March 1986 to 20 March 1987 for the above-mentioned parameters showed some variability and elevated levels of COD at some sample locations. Analytical results from the December 1992 sampling for volatile organics indicated that none of the compounds measured exceeded the designated detection limits. These analytical results for the New Landfill monitoring wells are included in Appendix A of this report.

Results were available from a 1989 and a 1992 sampling of the Princess Lakes water supply and a 1993 sampling of the Edinburgh Utilities municipal supply. All results were within Safe Drinking Water Act (SDWA) maximum contaminant levels (MCLs). Eastern Bartholomew reports similar results (Bloomer, 1993). Appendix B of this report, Analytical Results - Municipal Supply Systems, provides selected available results.

5.5 CONCLUSIONS AND RECOMMENDATIONS

Existing groundwater data of monitoring wells around the New Landfill and from nearby municipal wells indicate no significant contamination from the site. However, this database does not include monitoring information from potential source areas on-site, nor does it include analytical data from potential nearby private wells.

WESTON recommends that additional wells be installed on-site, along the site boundary north of, and parallel to, Wallace Road which would serve to establish site groundwater conditions as the groundwater leaves the property and would function as sentinel wells indicating a potential problem to off-site receptors before such receptors are impacted. These wells should be sampled initially for U.S. Environmental Protection Agency (EPA)

Target Compound List (TCL) and Target Analyte List (TAL) contaminants (see Appendix E). These EPA lists are generally used in site assessments to characterize site conditions. They contain no regulatory or statutory limits.

In addition, WESTON recommends that a comprehensive hydrogeological study be performed that would include groundwater velocity and direction determination, vertical gradients, recharge and discharge rates, and locations.

SECTION 6

SURFACE WATER PATHWAY

6.1 HYDROLOGIC SETTING

The northern-third of ARFTA is relatively flat with gently rolling topography approximately 750 ft above sea level (USGS, 1980). Soils in this northern area are derived from glacial outwash and drift from the Wisconsin Glacial Period. The southern two-thirds of ARFTA were not glaciated during the Wisconsin Period and have steep slopes and narrow valleys ranging from 500 to 1,000 ft above mean sea level (MSL). Soils in the northern-third are somewhat poorly drained, while in the south they are very poorly drained.

ARFTA lies predominantly within the watershed of the East Fork of the White River and is drained eastward by East Fork Salt, Catherine, Lick, Muddy Branch, Mud, and Ninevah Creeks, which flow into the Driftwood River. The Driftwood River begins at the confluence of Sugar Creek and Big Blue River. The flow rate of the Driftwood River at this point is estimated to be slightly more than 1,000 cubic feet per second (ft^3/s) (Keller, 1993). A small portion of the site in the south-eastern corner drains to Salt Creek.

6.2 TARGETS

The 15-mile downstream surface water pathway begins at the confluence of Lick Creek and Muddy Branch (see Attachment 1). Within a half-mile, Lick Creek drains into the Driftwood River, which flows south parallel to the installation boundary. At the City of Columbus, IN, the Driftwood River drains into the East Fork of the White River. The 15-mile surface water pathway ends on the East Fork of the White River just east of the Town of Walesboro. There are no downstream surface water intakes currently in use within the 15-mile downstream surface water pathway. Previously, relatively modest amounts of surface water had been diverted and used for agricultural and recreational purposes.

There are numerous wetlands located within 15 miles downstream of the installation (FWS, 1990). The total estimated frontage of wetlands along the 15-mile downstream distance is approximately 24 miles. According to Indiana DNR, there is a 30- to 40-acre classified wildlife habitat area on the southern bank of the Driftwood River where Wolf Creek drains into the Driftwood River.

Other sensitive environments within 15 miles downstream of the site include areas along the Driftwood River and the East Fork of the White River used for fishing, hunting, and recreational activities. No commercial fisheries are located within the 15-mile downstream pathway. According to DNR, there has been no fishery surveys specifically indicating the species of fish indigenous to either the Driftwood River or the East Fork of the White River. However, native families of fish to these rivers probably include catfish, suckers, minnows, and sunfish. There has also been no creel surveys indicating the number of fish harvested from either of these two rivers. According to the Department of Fish and Wildlife, the state does not routinely stock streams, but will stock lakes in state forests in Indiana (Lehman, 1993).

Based on those field surveys and studies administered by Indiana DNR, over 50 rare, endangered, threatened or significant species of plants and animals have been identified at ARFTA including the bobcat and timber rattlesnake. The complete state and federal lists are included in Appendix C of this report. A rare species of fish that may be present in the 15-mile downstream pathway is the northern studfish. A 1991 study also indicated the presence of the endangered Harlequin Darter in nearby waters (Keller, 1993). Several species of rare/endangered mussels exist in the Camp Atterbury area. These mussels include the snuffbox (state endangered), the rayed bean (Indiana special concern, federally endangered candidate), the little spectaclecase (Indiana special concern), and the wavy-rayed lampshell (Indiana special concern). Other rare animals that may be present are the rough green snake, least weasel, and bobcat. Many state-listed plant species were found at ARFTA during an inventory of natural areas and rare plant species conducted by Indiana DNR and are described in their 1990 report (DNR, 1990).

6.3 SAMPLE LOCATIONS

No surface water sampling activities were conducted as part of this PA. Surface water samples were collected as part of the Stream Survey/Shop Discharge Sampling Investigation performed by Alt & Witzig Engineering, Inc. in August 1992 (see Section 3). Eighteen samples were collected at designated ditch and stream locations and analyzed for pH, BOD, suspended solids, phosphates, nitrate, oil and grease, nitrogen ammonia, total kjeldahl nitrogen, COD, and benzene.

6.4 ANALYTICAL RESULTS

A review of analytical results for the above-mentioned parameters indicates locations with elevated COD levels and one location with an elevated BOD level. The COD elevated levels were attributed to high suspended solids/organic loading caused by a significant rainfall event during sampling. As noted in Subsection 3.4, the BOD result was presumed to be naturally occurring. Other analytical results were generally within local waterbody background levels or the applicable National Pollutant Discharge Elimination System (NPDES) limits (Alt & Witzig, 1992a).

Also of note is the report that regions of nearby waterways, including portions of the Driftwood River, were impacted in the early 1970s by the operation of several wood veneer companies located in Edinburgh. These streams are now recovering (McWhorter, 1993).

6.5 CONCLUSIONS AND RECOMMENDATIONS

Recent sampling of site surface waters and sediments has indicated no significant impacts from site operations. At the time of this report, these sampling data are less than 1-year old and confirmatory sampling at this time is not recommended.

SECTION 7

SOIL EXPOSURE AND AIR PATHWAYS

7.1 PHYSICAL CONDITIONS

The ARFTA facility is currently in operation and conditions reflect those discussed in Subsection 2.2 and in Section 4 of this report. The eastern-half of the perimeter of ARFTA is fenced and access is limited to authorized personnel and escorted visitors. Access to the Impact Area and the Air-to-Ground Range is restricted and closely supervised.

As discussed in Section 4, potential soil contamination areas exist at ARFTA. These areas include both the Impact Area and the Air-to-Ground Range, the battery acid disposal areas, the training kit area, the chemical agent area, and landfills. In addition, numerous areas throughout the site, particularly large vehicle parking areas and maintenance areas, contain soils stained by waste oils or fuels. Several fuel spills have been reported to, and cleaned under the supervision of DNR (McWhorter, 1993). Waste oils were also used for dust control. Thick oils were mixed with "Triple 6-5" (no Material Safety Data Sheet (MSDS) available), a chlorinated solvent, to reduce oil viscosity and facilitate spraying (Wright, 1993).

There are currently no apparent releases of hazardous materials into the air at ARFTA. However, the potential exists for release due to contamination at waste areas and parking/ maintenance areas. No known air monitoring has been conducted at the site.

7.2 SOIL AND AIR TARGETS

There are approximately 150 persons working at ARFTA. Approximately 80 people reside at ARFTA. There are sufficient buildings on ARFTA to house 470 officers and 2,960 enlisted personnel using the peace time criteria of 54 square feet (ft^2)/man. Neither schools nor day-care facilities are located on ARFTA property. The nearest school is located in Edinburgh, IN, approximately 2 miles from the nearest potential source area.

Using four potential source areas located near the ARFTA property boundary, the Graphical Exposure Modeling System (GEMS) database was utilized to estimate population rings around the four potential source areas. Estimates of the population surrounding ARFTA for 1/4-, 1/2-, 1-, 2-, 3- and 4-mile radii from these areas are:

Old Landfill:	Distance	Population
	< 0.25 miles	0
	0.25 - 0.5 miles	0
	0.5 - 1.0 miles	0
	1.0 - 2.0 miles	1,883
	2.0 - 3.0 miles	4,367
	3.0 - 4.0 miles	1,152

Southeast Corner of Impact Area:	Distance	Population
	< 0.25 miles	0
	0.25 - 0.5 miles	0
	0.5 - 1.0 miles	0
	1.0 - 2.0 miles	1,845
	2.0 - 3.0 miles	1,452
	3.0 - 4.0 miles	1,316

Southern Point of Air-to-Ground Range:	Distance	Population
	< 0.25 miles	0
	0.25 - 0.5 miles	0
	0.5 - 1.0 miles	0
	1.0 - 2.0 miles	0
	2.0 - 3.0 miles	0
	3.0 - 4.0 miles	1,693

Suspected Chemical Agent Area:	Distance	Population
	< 0.25 miles	0
	0.25 - 0.5 miles	0
	0.5 - 1.0 miles	0
	1.0 - 2.0 miles	12
	2.0 - 3.0 miles	3,541
	3.0 - 4.0 miles	1,181

Sensitive environments located within a 4-mile radius of the site include: the 5,000-acre Atterbury State Fish and Wildlife Area located north of ARFTA, and Victor Woods to the

west. Also within 10 to 15 miles of the site are: Brown County State Park, Yellowwood State Forest, Hoosier National Forest, and Morgan Monroe State Forest. A listing of state and federally endangered/rare animals from the Indiana DNR is provided in Appendix C of this report.

In addition to hunting and fishing, activities at the Atterbury State Fish and Wildlife Area include trapping, archery, boating, berry/mushroom/nut gathering, hiking, and swimming (DNR, undated pamphlet).

7.3 SOIL SAMPLE LOCATIONS

No soil sampling was conducted as part of the PA. Soil sampling was conducted as part of the Post Maintenance Areas and Ditch Systems Sampling Investigation conducted by Alt & Witzig Engineering, Inc. in July 1992 (see Section 3). Twelve soil boring samples were collected in site drainage pathways from maintenance areas and analyzed for cadmium, chromium, lead, and TPH.

7.4 SOIL ANALYTICAL RESULTS

Results of the Alt & Witzig Engineering, Inc. soil sampling program indicated relatively low levels of TPH contamination in eight boring locations and relatively low concentrations of cadmium, chromium, and lead in 10 borings. All results were found to be below federal proposed action levels and/or Indiana Department of Environmental Management (IDEM) guidance (Alt & Witzig, 1992b).

7.5 AIR SAMPLE LOCATIONS

No air sampling was conducted as part of this PA. There has been no known air sampling conducted at this site.

7.6 AIR ANALYTICAL RESULTS

Air sampling has not been performed at the installation.

7.7 CONCLUSIONS AND RECOMMENDATIONS

Only limited investigation has been performed at ARFTA for possible impacts to soil. No significant concentrations of contaminants were found. WESTON recommends the following sampling program to assess the potential impacts of site sources on facility soils:

- Vehicle Wash Racks - The site walk-through identified areas of stained soils at most vehicle wash racks at the facility. It is recommended that one soil sample be collected from a depth of 0 to 2 inches and analyzed for TPH. Should *significant contamination be found (i.e., TPH greater than 100 ppm)*, a subsurface soil program to determine the nature (i.e.-presence of metals) and extent of contamination should be conducted. Such locations include the wash racks east of Area 6H1, the wash racks west of Area 2B1, and the wash racks northeast of Block 3.

- The Old Landfill - An investigatory program is recommended to assess potential contaminants of concern and the extent of landfill-contaminated soils and materials. Establishment of landfill boundaries through analysis of historical overflex photography is a safe and important first step toward understanding both potential impacts from the landfill and possible remedial activities. A geophysical survey may also be valuable in assessing the boundaries of the landfill. In addition, as noted earlier in the groundwater pathway section, valuable information can be obtained through the installation and sampling of perimeter monitoring wells around the Old Landfill.

- Impact Areas - It has been noted that UXO and phosphorus are likely present in both the Impact Area and the Air-to-Ground Range. Therefore, intrusive activities, particularly in the area of the stationary targets where the greatest concentration of UXO is suspected, are not recommended. However, it should be possible to establish sediment traps along drainage ways from these two areas to collect sediment from runoff. Samples could be collected, for instance, between the Air-to-Ground Range and either Puff Lake or Beaver Pond. Tributaries to Mud Creek pass through the Air to Ground Range relatively close to active targeting areas. Sampling of these tributaries as they pass through the area would be significant. Such sediment collection and sampling would shed light on existing soil conditions and would provide valuable information regarding potential impacts along surface water and overland soil pathways.

Sediments collected should be analyzed for EPA TAL and TCL compounds and phosphorus.

- Battery Acid Disposal Areas - During recent activities in OMS-2A, stained soils presumably resulting from the disposal of battery acids were discovered at depths exceeding 6 to 8 ft. Therefore, subsurface soil sampling is recommended to assess the characteristics of contamination and its extent. It is recommended that this area be re-excavated and the area of visible stainage sampled for soil pH and lead content. Establishing the extent of contamination requires cleanup criteria. Such criteria could include background concentrations for lead or pH, RCRA-proposed soil contaminant concentrations, or Indiana regulatory guidance precedent. Once these criteria are established, the extent of contamination should be determined through excavation and sampling or through a gridded soil boring program.

  The battery acid disposal area located in the Old UTES should also be characterized. A similar subsurface soil characterization program for lead and pH should be applicable to this area.

- Suspected Agent Burning Area - As noted earlier, this area is currently under investigation by the installation; therefore, no recommendations are made at this time.

- CAIS Area - The CAIS Area is located within the boundaries of the Impact Area just north of the Air-to-Ground Range. As noted earlier, this area is restricted and closely monitored, and intrusive activities in this area will be hazardous due to the likely presence of UXO and phosphorus. Therefore, no sampling in this area is recommended.

With regard to the air pathway, there are no data to access potential impacts. However, visual inspection during the site walk-through uncovered no evidence suggesting a negative impact from site activities. No sampling is recommended at this time.

SECTION 8
SUMMARY AND RECOMMENDATIONS

This PA performed for the ARFTA facility gathered available information to evaluate site conditions and the potential for migration of and exposure to contaminants. During the PA, information from available site and state regulatory agency files was collected and a site visit was conducted to examine potential contamination at the facility and the target populations and environments at risk.

Based on information gathering, records review, and an on-site visit to the ARFTA facility, the site poses no immediate or obvious environmental threat; however, analytical data are not comprehensive and the potential for migration of contaminants and exposure by target populations and sensitive environments does exist. Of concern is the potential use of shallow private wells along Wallace Road. Wells in this area may be downgradient of the Old Landfill and other site sources such as the Impact Area and are potentially at risk. Though the New Landfill appears to be downgradient of the Old Landfill, monitor well installation along the site perimeter north of Wallace Road is recommended.

It is recommended that soil sampling activities be conducted at the site to further assess potential contamination areas and the migration of contamination. Soil sampling is recommended at the vehicle wash racks, battery acid disposal areas, and at sediment traps located downgradient of impact areas. Sampling is not recommended at the Impact Area or Air-to-Ground Range due to the potential for UXO.

In addition, WESTON recommends that a comprehensive hydrogeological study be performed which would include groundwater velocity and direction determination, vertical gradients, recharge and discharge rates, and locations.

SECTION 9

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APPENDIX A

DECEMBER 1992 ANALYTICAL RESULTS
NEW LANDFILL MONITORING WELLS

Landfill monitor
well sampling
analysis

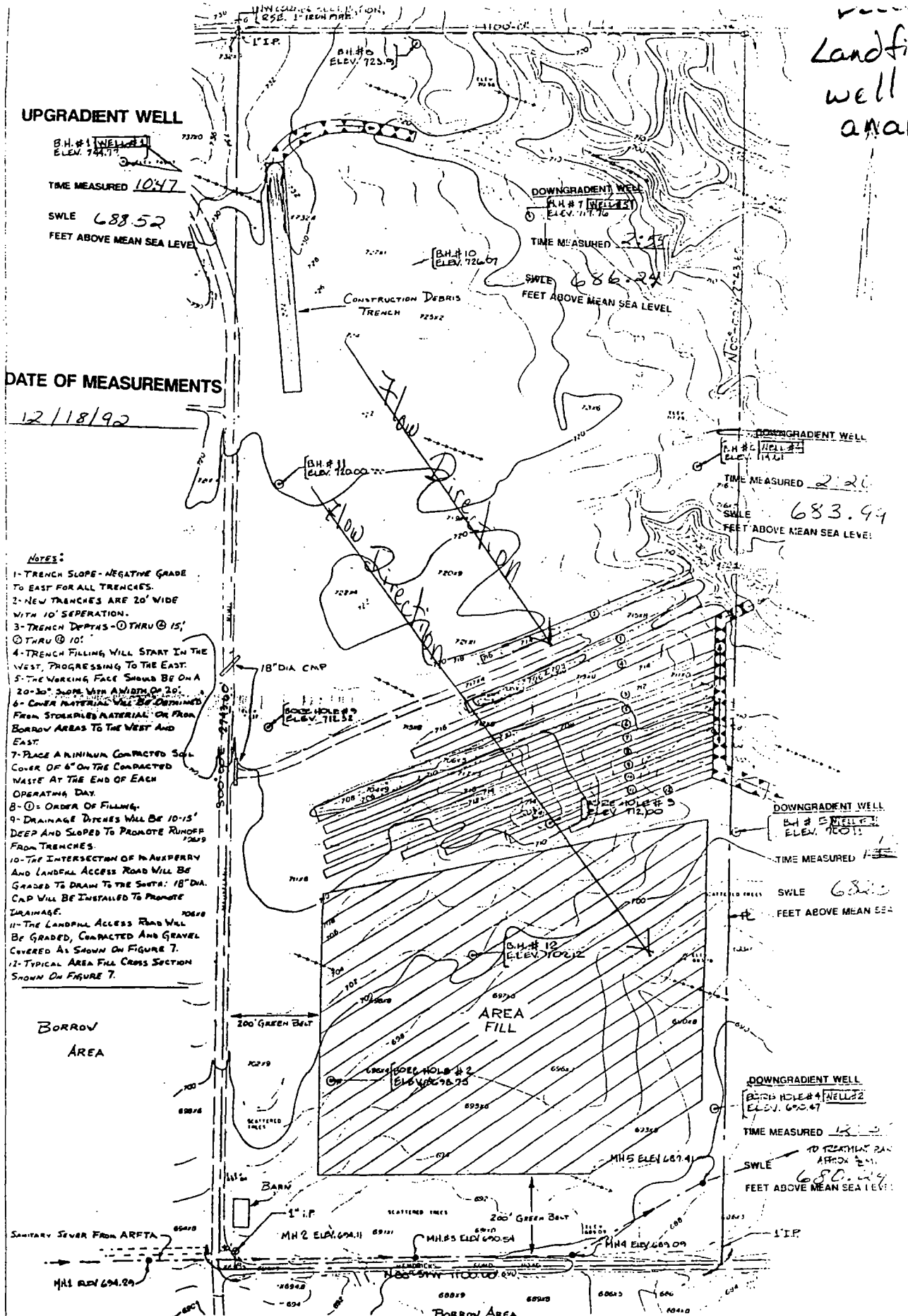


FIGURE: K-4

ATTERBURY RESERVE FORCES TRAINING AREA, INDIANA
SANITARY LANDFILL / OPERATIONAL PLOT PLAN
SOLID WASTE MANAGEMENT STUDY No: 81-26-0146-81
BARTHOLOMEW COUNTY

US ARMY ENVIRONMENTAL HYGIENE
WASTE DISPOSAL ENGINEERING
ABERDEEN PROVING GROUND

DRAWN BY _____ DATE
APPROVED BY _____ DATE

TEST RESULTS BY SAMPLE

Sample Description: MW-1 Water Lab No: 01E
Test Description: Volatile Organics, PATGCMS Method: EPA 624 Test Code: VOC_44
Collected: 12/18/92 Category: WATER

PARAMETER	CAS NUMBER	RESULT	LIMIT	BLANK	BLANK LIMIT
Dichlorodifluoromethane	75-71-8	ND	10	ND	10
Chloromethane	74-87-3	ND	10	ND	10
Vinyl chloride	75-01-4	ND	10	ND	10
Bromomethane	74-83-9	ND	10	ND	10
Chloroethane	75-00-3	ND	10	ND	10
Trichlorofluoromethane	75-69-4	ND	10	ND	10
Acrolein	107-02-8	ND	25	ND	25
Acetone	67-64-1	ND	25	BQL	25
1,1-Dichloroethene	75-35-4	ND	5.0	ND	5.0
Iodomethane	74-88-4	ND	5.0	ND	5.0
Acrylonitrile	107-13-1	ND	5.0	ND	5.0
Methylene chloride	75-09-2	ND	5.0	6.3	5.0
Carbon disulfide	75-15-0	ND	5.0	ND	5.0
trans-1,2-Dichloroethene	156-60-5	ND	5.0	ND	5.0
1,1-Dichloroethane	75-34-3	ND	5.0	ND	5.0
Vinyl acetate	108-05-4	ND	25	ND	25
2-Butanone (MEK)	78-93-3	10	10	12	10
cis-1,2-Dichloroethene	159-59-2	ND	5.0	ND	5.0
Chloroform	67-66-3	ND	5.0	ND	5.0
1,1,1-Trichloroethane	71-55-6	ND	5.0	ND	5.0
1,2-Dichloroethane	107-06-2	ND	5.0	ND	5.0
Benzene	71-43-2	ND	5.0	ND	5.0

TEST RESULTS BY SAMPLE

Sample Description: MW-1 Water Lab No: 01E
Test Description: Volatile Organics, PATGCMS Method: EPA 624 Test Code: VOC_44
Collected: 12/18/92 Category: WATER

Carbon tetrachloride	56-23-5	ND	5.0	ND	5.0
1,2-Dichloropropane	78-87-5	ND	5.0	ND	5.0
Dibromomethane	106-93-4	ND	5.0	ND	5.0
Trichloroethene	79-01-6	ND	5.0	ND	5.0
2-Chloroethyl vinyl ether	110-75-8	ND	10	ND	10
Bromodichloromethane	75-27-4	ND	5.0	ND	5.0
2-Hexanone	591-78-6	BQL	5.0	5.5	5.0
trans-1,3-Dichloropropene	10061-02-6	ND	5.0	ND	5.0
cis-1,3-Dichloropropene	10061-01-5	ND	5.0	ND	5.0
Toluene	108-88-3	ND	5.0	ND	5.0
1,1,2-Trichloroethane	79-00-5	ND	5.0	ND	5.0
Ethylmethacrylate	97-63-2	ND	10	ND	10
4-Methyl-2-pentanone (MIBK)	108-10-1	ND	5.0	ND	5.0
Dibromochloromethane	124-48-1	ND	5.0	ND	5.0
Tetrachloroethene	127-18-4	ND	5.0	ND	5.0
Chlorobenzene	108-90-7	ND	5.0	ND	5.0
Ethylbenzene	100-41-4	ND	5.0	ND	5.0
Total xylenes	1330-20-7	ND	5.0	ND	5.0
Bromoform	75-25-2	ND	5.0	ND	5.0
Styrene	500-42-5	ND	5.0	ND	5.0
1,1,2,2-Tetrachloroethane	79-34-5	ND	5.0	ND	5.0
1,2,3-Trichloropropane	96-18-4	ND	5.0	ND	5.0
1,3-Dichlorobenzene	541-73-1	na	5.0	ND	5.0
1,4-Dichlorobenzene	106-46-7	na	5.0	ND	5.0
1,2-Dichlorobenzene	95-50-1	na	5.0	ND	5.0

TEST RESULTS BY SAMPLE

Sample Description: MW-1 Water Lab No: 01E
Test Description: Volatile Organics, PATGCMS Method: EPA 624 Test Code: VOC_44
Collected: 12/18/92 Category: WATER

SURROGATE	%RECOVERY	LIMITS	
1,2-Dichloroethane-d4	103	79 -	114
Toluene-d8	114	75 -	126
p-Bromofluorobenzene	110	71 -	114

Analytical Run Information:

EXTRACTED	
DATE RUN	12/22/92
ANALYST	KAH
INSTRUMENT	5970MS
FILE ID	1222A02A.D
CONC FACTOR	1.000
UNITS	ug/L

TEST RESULTS BY SAMPLE

Sample Description: MW-2 Water Lab No: 03E
Test Description: Volatile Organics, PATGCMS Method: SW846_8260 Test Code: VOC
Collected: 12/18/92 Category: WATER

PARAMETER	RESULT	LIMIT	BLANK
Chloromethane 74-87-3	nd	10	nd @ 10
Vinyl chloride 75-01-4	nd	10	nd @ 10
Bromomethane 74-83-9	nd	10	nd @ 10
Chloroethane 75-00-3	nd	10	nd @ 10
Acetone 67-64-1	bql	25	bql @ 25
1,1-Dichloroethene 75-35-4	nd	5.0	nd @ 5
Methylene chloride 75-09-2	nd	5.0	nd @ 5
Carbon disulfide 75-15-0	nd	5.0	nd @ 5
trans-1,2-Dichloroethene 156-60-5	nd	5.0	nd @ 5
1,1-Dichloroethane 75-34-3	nd	5.0	nd @ 5
2-Butanone (MEK) 78-93-3	10	10	bql @ 10
cis-1,2-Dichloroethene 159-59-2	nd	5.0	nd @ 5
Chloroform 67-66-3	nd	5.0	nd @ 5
1,1,1-Trichloroethane 71-55-6	nd	5.0	nd @ 5
1,2-Dichloroethane 107-06-2	nd	5.0	nd @ 5
Benzene 71-43-2	nd	5.0	nd @ 5
Carbon tetrachloride 56-23-5	nd	5.0	nd @ 5
1,2-Dichloropropane 78-87-5	nd	5.0	nd @ 5
Trichloroethene 79-01-6	nd	5.0	nd @ 5
Bromodichloromethane 75-27-4	nd	5.0	nd @ 5
2-Hexanone 591-78-6	nd	5.0	nd @ 5
trans-1,3-Dichloropropene 10061-02-6	nd	5.0	nd @ 5
cis-1,3-Dichloropropene	nd	5.0	nd @ 5

TEST RESULTS BY SAMPLE

Sample Description: MW-2 Water Lab No: 03E
Test Description: Volatile Organics, PATGCMS Method: SW846_8260 Test Code: VOC
Collected: 12/18/92 Category: WATER

10061-01-5			
Toluene	nd	5.0	nd @ 5
108-88-3			
1,1,2-Trichloroethane	nd	5.0	nd @ 5
79-00-5			
4-Methyl-2-pentanone (MIBK)	nd	5.0	nd @ 5
108-10-1			
Dibromochloromethane	nd	5.0	nd @ 5
124-48-1			
Tetrachloroethene	nd	5.0	nd @ 5
127-18-4			
Chlorobenzene	nd	5.0	nd @ 5
108-90-7			
Ethylbenzene	nd	5.0	nd @ 5
100-41-4			
Total xylenes	nd	5.0	nd @ 5
1330-20-7			
Bromoform	nd	5.0	nd @ 5
75-25-2			
Styrene	nd	5.0	nd @ 5
500-42-5			
1,1,2,2-Tetrachloroethane	nd	5.0	nd @ 5
79-34-5			

SURROGATE	%RECOVERY	LIMITS
1,2-Dichloroethane-d4	100	79 - 114
Toluene-d8	100	75 - 126
p-Bromofluorobenzene	102	71 - 114

Notes and Definitions for this Report:

EXTRACTED	
DATE RUN	12/22/92
ANALYST	KAH
INSTRUMENT	5971MS
FILE ID	0201002.D
CONC FACTOR	1.000
UNITS	ug/L

TEST RESULTS BY SAMPLE

Sample Description: MW-3 Water Lab No: 04E
Test Description: Volatile Organics, PATGCMS Method: SW846_8260 Test Code: VOC
Collected: 12/18/92 Category: WATER

PARAMETER	RESULT	LIMIT	BLANK
Chloromethane 74-87-3	nd	10	nd @ 10
Vinyl chloride 75-01-4	nd	10	nd @ 10
Bromomethane 74-83-9	nd	10	nd @ 10
Chloroethane 75-00-3	nd	10	nd @ 10
Acetone 67-64-1	bql	25	bql @ 25
1,1-Dichloroethene 75-35-4	nd	5.0	nd @ 5
Methylene chloride 75-09-2	nd	5.0	nd @ 5
Carbon disulfide 75-15-0	nd	5.0	nd @ 5
trans-1,2-Dichloroethene 156-60-5	nd	5.0	nd @ 5
1,1-Dichloroethane 75-34-3	nd	5.0	nd @ 5
2-Butanone (MEK) 78-93-3	bql	10	bql @ 10
cis-1,2-Dichloroethene 159-59-2	nd	5.0	nd @ 5
Chloroform 67-66-3	nd	5.0	nd @ 5
1,1,1-Trichloroethane 71-55-6	nd	5.0	nd @ 5
1,2-Dichloroethane 107-06-2	nd	5.0	nd @ 5
Benzene 71-43-2	nd	5.0	nd @ 5
Carbon tetrachloride 56-23-5	nd	5.0	nd @ 5
1,2-Dichloropropane 78-87-5	nd	5.0	nd @ 5
Trichloroethene 79-01-6	nd	5.0	nd @ 5
Bromodichloromethane 75-27-4	nd	5.0	nd @ 5
2-Hexanone 591-78-6	nd	5.0	nd @ 5
trans-1,3-Dichloropropene 10061-02-6	nd	5.0	nd @ 5
cis-1,3-Dichloropropene	nd	5.0	nd @ 5

TEST RESULTS BY SAMPLE

Sample Description: MW-3 Water Lab No: 04E
Test Description: Volatile Organics, PATGCMS Method: SW846_8260 Test Code: VOC
Collected: 12/18/92 Category: WATER

10061-01-5			
Toluene	nd	5.0	nd @ 5
108-88-3			
1,1,2-Trichloroethane	nd	5.0	nd @ 5
79-00-5			
4-Methyl-2-pentanone (MIBK)	nd	5.0	nd @ 5
108-10-1			
Dibromochloromethane	nd	5.0	nd @ 5
124-48-1			
Tetrachloroethene	nd	5.0	nd @ 5
127-18-4			
Chlorobenzene	nd	5.0	nd @ 5
108-90-7			
Ethylbenzene	nd	5.0	nd @ 5
100-41-4			
Total xylenes	nd	5.0	nd @ 5
1330-20-7			
Bromoform	nd	5.0	nd @ 5
75-25-2			
Styrene	nd	5.0	nd @ 5
500-42-5			
1,1,2,2-Tetrachloroethane	nd	5.0	nd @ 5
79-34-5			

SURROGATE	%RECOVERY	LIMITS	
1,2-Dichloroethane-d4	99	79 -	114
Toluene-d8	98	75 -	126
p-Bromofluorobenzene	102	71 -	114

Notes and Definitions for this Report:

EXTRACTED	
DATE RUN	12/22/92
ANALYST	KAH
INSTRUMENT	5971MS
FILE ID	0301003.D
CONC FACTOR	1.000
UNITS	ug/L

TEST RESULTS BY SAMPLE

Sample Description: MW-4 Water Lab No: 05E
Test Description: Volatile Organics, PATGCMS Method: SW846_8260 Test Code: VOC
Collected: 12/18/92 Category: WATER

PARAMETER	RESULT	LIMIT	BLANK
Chloromethane 74-87-3	nd	10	nd @ 10
Vinyl chloride 75-01-4	nd	10	nd @ 10
Bromomethane 74-83-9	nd	10	nd @ 10
Chloroethane 75-00-3	nd	10	nd @ 10
Acetone 67-64-1	bql	25	bql @ 25
1,1-Dichloroethene 75-35-4	nd	5.0	nd @ 5
Methylene chloride 75-09-2	nd	5.0	nd @ 5
Carbon disulfide 75-15-0	nd	5.0	nd @ 5
trans-1,2-Dichloroethene 156-60-5	nd	5.0	nd @ 5
1,1-Dichloroethane 75-34-3	nd	5.0	nd @ 5
2-Butanone (MEK) 78-93-3	bql	10	bql @ 25
cis-1,2-Dichloroethene 159-59-2	nd	5.0	nd @ 5
Chloroform 67-66-3	nd	5.0	nd @ 5
1,1,1-Trichloroethane 71-55-6	nd	5.0	nd @ 5
1,2-Dichloroethane 107-06-2	nd	5.0	nd @ 5
Benzene 71-43-2	nd	5.0	nd @ 5
Carbon tetrachloride 56-23-5	nd	5.0	nd @ 5
1,2-Dichloropropane 78-87-5	nd	5.0	nd @ 5
Trichloroethene 79-01-6	nd	5.0	nd @ 5
Bromodichloromethane 75-27-4	nd	5.0	nd @ 5
2-Hexanone 591-78-6	nd	5.0	nd @ 5
trans-1,3-Dichloropropene 10061-02-6	nd	5.0	nd @ 5
cis-1,3-Dichloropropene	nd	5.0	nd @ 5

TEST RESULTS BY SAMPLE

Sample Description: MW-4 Water Lab No: 05E
Test Description: Volatile Organics, PATGCMS Method: SW846_8260 Test Code: VOC
Collected: 12/18/92 Category: WATER

10061-01-5			
Toluene	nd	5.0	nd @ 5
108-88-3			
1,1,2-Trichloroethane	nd	5.0	nd @ 5
79-00-5			
4-Methyl-2-pentanone (MIBK)	nd	5.0	nd @ 5
108-10-1			
Dibromochloromethane	nd	5.0	nd @ 5
124-48-1			
Tetrachloroethene	nd	5.0	nd @ 5
127-18-4			
Chlorobenzene	nd	5.0	nd @ 5
108-90-7			
Ethylbenzene	nd	5.0	nd @ 5
100-41-4			
Total xylenes	nd	5.0	nd @ 5
1330-20-7			
Bromoform	nd	5.0	nd @ 5
75-25-2			
Styrene	nd	5.0	nd @ 5
500-42-5			
1,1,2,2-Tetrachloroethane	nd	5.0	nd @ 5
79-34-5			

SURROGATE	%RECOVERY	LIMITS	
1,2-Dichloroethane-d4	103	79 -	114
Toluene-d8	102	75 -	126
p-Bromofluorobenzene	105	71 -	114

Notes and Definitions for this Report:

EXTRACTED	
DATE RUN	12/22/92
ANALYST	KAH
INSTRUMENT	5971MS
FILE ID	0401004.D
CONC FACTOR	1.000
UNITS	ug/L

TEST RESULTS BY SAMPLE

Sample Description: MW-5 Water Lab No: 06E
Test Description: Volatile Organics, PATGCMS Method: SW846_8260 Test Code: VOC
Collected: 12/18/92 Category: WATER

PARAMETER	RESULT	LIMIT	BLANK
Chloromethane 74-87-3	nd	10	nd @ 10
Vinyl chloride 75-01-4	nd	10	nd @ 10
Bromomethane 74-83-9	nd	10	nd @ 10
Chloroethane 75-00-3	nd	10	nd @ 10
Acetone 67-64-1	bql	25	bql @ 25
1,1-Dichloroethene 75-35-4	nd	5.0	nd @ 10
Methylene chloride 75-09-2	nd	5.0	nd @ 5
Carbon disulfide 75-15-0	nd	5.0	nd @ 5
trans-1,2-Dichloroethene 156-60-5	nd	5.0	nd @ 5
1,1-Dichloroethane 75-34-3	nd	5.0	nd @ 5
2-Butanone (MEK) 78-93-3	bql	10	bql @ 10
cis-1,2-Dichloroethene 159-59-2	nd	5.0	nd @ 5
Chloroform 67-66-3	nd	5.0	nd @ 5
1,1,1-Trichloroethane 71-55-6	nd	5.0	nd @ 5
1,2-Dichloroethane 107-06-2	nd	5.0	nd @ 5
Benzene 71-43-2	nd	5.0	nd @ 5
Carbon tetrachloride 56-23-5	bql	5.0	nd @ 5
1,2-Dichloropropane 78-87-5	nd	5.0	nd @ 5
Trichloroethene 79-01-6	nd	5.0	nd @ 5
Bromodichloromethane 75-27-4	nd	5.0	nd @ 5
2-Hexanone 591-78-6	nd	5.0	nd @ 5
trans-1,3-Dichloropropene 10061-02-6	nd	5.0	nd @ 5
cis-1,3-Dichloropropene	nd	5.0	nd @ 5

TEST RESULTS BY SAMPLE

Sample Description: MW-5 Water Lab No: 06E
Test Description: Volatile Organics, PATGCMS Method: SW846_8260 Test Code: VOC
Collected: 12/18/92 Category: WATER

10061-01-5			
Toluene	nd	5.0	nd @ 5
108-88-3			
1,1,2-Trichloroethane	nd	5.0	nd @ 5
79-00-5			
4-Methyl-2-pentanone (MIBK)	nd	5.0	nd @ 5
108-10-1			
Dibromochloromethane	nd	5.0	nd @ 5
124-48-1			
Tetrachloroethene	nd	5.0	nd @ 5
127-18-4			
Chlorobenzene	nd	5.0	nd @ 5
108-90-7			
Ethylbenzene	nd	5.0	nd @ 5
100-41-4			
Total xylenes	nd	5.0	nd @ 5
1330-20-7			
Bromoform	nd	5.0	nd @ 5
75-25-2			
Styrene	nd	5.0	nd @ 5
500-42-5			
1,1,2,2-Tetrachloroethane	nd	5.0	nd @ 5
79-34-5			

SURROGATE	%RECOVERY	LIMITS
1,2-Dichloroethane-d4	102	79 - 114
Toluene-d8	98	75 - 126
p-Bromofluorobenzene	100	71 - 114

Notes and Definitions for this Report:

EXTRACTED	
DATE RUN	12/22/92
ANALYST	KAH
INSTRUMENT	5971MS
FILE ID	0501005.D
CONC FACTOR	1.000
UNITS	ug/L

GROUNDWATER MONITORING LOG
CAMP ATTERBURY
DECEMBER 1992

WELL NO. MW 1 DATE. 12/18/92

SAMPLE TYPE: (GROUNDWATER)/TRIP BLANK/EQUIPMENT BLANK

SAMPLERS COMPANY: ENVIRONMENTAL SERVICE GROUP
5933 WEST 71ST STREET
INDIANAPOLIS, IN 46278

PURGING METHOD: BAILING NAME OF PERSON BAILING CRAIG KOCH

EQUIPMENT: TEFLON BOTTOM DISCHARGE BAILER W/NYLON ROPE DEDICATED: Y/(N)

WELL DIAMETER 2" INCHES WELL MATERIAL: (PVC)/STAINLESS STEEL

CASING STICK-UP 2.79 FEET REF.MEASURING PT: NOTCH ON INNER WELL CASING

MEASUREMENT DEVICE: WATER LEVEL INDICATOR

WELL ELEVATION 744.77FT WATER VOLUME IN CASING 0.84 GAL.

STATIC WATER LEVEL 56.25FT CALCULATED PURGE VOLUME 2.52 GAL.

GROUNDWATER ELEVATION 688.52 FT PURGE START TIME 1047 HOURS

WELL DEPTH 61.40 FT PURGE STOP TIME 1100 HOURS

CALCULATIONS:
GROUNDWATER ELEVATION = WELL ELEVATION - STATIC WATER LEVEL
WATER VOLUME IN 2 INCH CASING = WELL DEPTH - STATIC WATER LEVEL * 0.163
PURGE VOLUME = WATER VOLUME * 3

VOLUME PURGED 2.5 GAL REL. RECHARGE RATE: (GOOD)/POOR(DRY)

WEATHER CONDITIONS COOL AND CLOUDY

OTHER FIELD EQUIPMENT NONE

COMMENTS

ECK

GROUNDWATER MONITORING LOG
CAMP ATTERBURY
DECEMBER 1992

WELL NO. MW 2 DATE. 12/18/92

SAMPLE TYPE: (GROUNDWATER)/TRIP BLANK/EQUIPMENT BLANK

SAMPLERS COMPANY: ENVIRONMENTAL SERVICE GROUP
5933 WEST 71ST STREET
INDIANAPOLIS, IN 46278

PURGING METHOD: BAILING NAME OF PERSON BAILING CRAIG KOCH

EQUIPMENT: TEFLON BOTTOM DISCHARGE BAILER W/NYLON ROPE DEDICATED: Y/N

WELL DIAMETER 2.0" INCHES WELL MATERIAL: (PVC)/STAINLESS STEEL

CASING STICK-UP 3.92 FEET REF.MEASURING PT: NOTCH ON INNER WELL CASING

MEASUREMENT DEVICE: WATER LEVEL INDICATOR

WELL ELEVATION 690.47 FT WATER VOLUME IN CASING 2.3 GAL.

STATIC WATER LEVEL 10.23 FT CALCULATED PURGE VOLUME 7 GAL.

GROUNDWATER ELEVATION 680.24 FT PURGE START TIME 1230 HOURS

WELL DEPTH 24.50 FT PURGE STOP TIME 1240 HOURS

CALCULATIONS:
GROUNDWATER ELEVATION = WELL ELEVATION - STATIC WATER LEVEL
WATER VOLUME IN 2 INCH CASING = WELL DEPTH - STATIC WATER LEVEL * 0.163
PURGE VOLUME = WATER VOLUME * 3

VOLUME PURGED 7 REL. RECHARGE RATE: (GOOD)/POOR(DRY)

WEATHER CONDITIONS COOL AND CLOUDY

OTHER FIELD EQUIPMENT NONE

COMMENTS

GROUNDWATER MONITORING LOG
CAMP ATTERBURY
DECEMBER 1992

WELL NO. MW 3 DATE. 12/18/92

SAMPLE TYPE: (GROUNDWATER)/TRIP BLANK/EQUIPMENT BLANK

SAMPLERS COMPANY: ENVIRONMENTAL SERVICE GROUP
5933 WEST 71ST STREET
INDIANAPOLIS, IN 46278

PURGING METHOD: BAILING NAME OF PERSON BAILING CRAIG KOCH

EQUIPMENT: TEFLON BOTTOM DISCHARGE BAILER W/NYLON ROPE DEDICATED: Y/(N)

WELL DIAMETER 2.0" INCHES WELL MATERIAL: (PVC)/STAINLESS STEEL

CASING STICK-UP 3.17 FEET REF.MEASURING PT: NOTCH ON INNER WELL CASING

MEASUREMENT DEVICE: WATER LEVEL INDICATOR

WELL ELEVATION 700.00 FT WATER VOLUME IN CASING 1.3 GAL.

STATIC WATER LEVEL 17.50 FT CALCULATED PURGE VOLUME 4.0 GAL.

GROUNDWATER ELEVATION 682.50 FT PURGE START TIME 1330 HOURS

WELL DEPTH 25.25 FT PURGE STOP TIME 1340 HOURS

CALCULATIONS:
GROUNDWATER ELEVATION = WELL ELEVATION - STATIC WATER LEVEL
WATER VOLUME IN 2 INCH CASING = WELL DEPTH - STATIC WATER LEVEL * 0.163
PURGE VOLUME = WATER VOLUME * 3

VOLUME PURGED 4 REL. RECHARGE RATE: (GOOD)/POOR(DRY)

WEATHER CONDITIONS COOL AND CLOUDY

OTHER FIELD EQUIPMENT NONE

COMMENTS

ECK

GROUNDWATER MONITORING LOG
CAMP ATTERBURY
DECEMBER 1992

WELL NO. MW 4 DATE. 12/18/92

SAMPLE TYPE: GROUNDWATER/TRIP BLANK/EQUIPMENT BLANK

SAMPLERS COMPANY: ENVIRONMENTAL SERVICE GROUP
5933 WEST 71ST STREET
INDIANAPOLIS, IN 46278

PURGING METHOD: BAILING NAME OF PERSON BAILING CRAIG KOCH

EQUIPMENT: TEFLON BOTTOM DISCHARGE BAILER W/NYLON ROPE DEDICATED: Y/N

WELL DIAMETER 2.0" INCHES WELL MATERIAL: PVC/STAINLESS STEEL

CASING STICK-UP 3.0 FEET REF.MEASURING PT: NOTCH ON INNER WELL CASING

MEASUREMENT DEVICE: WATER LEVEL INDICATOR

WELL ELEVATION 714.61 FT WATER VOLUME IN CASING 0.78 GAL.

STATIC WATER LEVEL 30.63 FT CALCULATED PURGE VOLUME 2.5 GAL.

GROUNDWATER ELEVATION 683.99 FT PURGE START TIME 1420 HOURS

WELL DEPTH 35.4 FT PURGE STOP TIME 1430 HOURS

CALCULATIONS:
GROUNDWATER ELEVATION = WELL ELEVATION - STATIC WATER LEVEL
WATER VOLUME IN 2 INCH CASING = WELL DEPTH - STATIC WATER LEVEL * 0.163
PURGE VOLUME = WATER VOLUME * 3

VOLUME PURGED 2.5 REL. RECHARGE RATE: GOOD/POOR(DRY)

WEATHER CONDITIONS COOL AND CLOUDY

OTHER FIELD EQUIPMENT NONE

COMMENTS

GROUNDWATER MONITORING LOG
CAMP ATTERBURY
DECEMBER 1992

WELL NO. MW 5 DATE. 12/18/92

SAMPLE TYPE: (GROUNDWATER)/TRIP BLANK/EQUIPMENT BLANK

SAMPLERS COMPANY: ENVIRONMENTAL SERVICE GROUP
5933 WEST 71ST STREET
INDIANAPOLIS, IN 46278

PURGING METHOD: BAILING NAME OF PERSON BAILING CRAIG KOCH

EQUIPMENT: TEFLON BOTTOM DISCHARGE BAILER W/NYLON ROPE DEDICATED: Y/N

WELL DIAMETER 2.0" INCHES WELL MATERIAL: (PVC)/STAINLESS STEEL

CASING STICK-UP 3.17 FEET REF.MEASURING PT: NOTCH ON INNER WELL CASING

MEASUREMENT DEVICE: WATER LEVEL INDICATOR

WELL ELEVATION 717.76 FT WATER VOLUME IN CASING 3.1 GAL.

STATIC WATER LEVEL 31.52 FT CALCULATED PURGE VOLUME 9.5 GAL.

GROUNDWATER ELEVATION 686.24 FT PURGE START TIME 1455 HOURS

WELL DEPTH 50.5 FT PURGE STOP TIME 1505 HOURS

CALCULATIONS:
GROUNDWATER ELEVATION = WELL ELEVATION - STATIC WATER LEVEL
WATER VOLUME IN 2 INCH CASING = WELL DEPTH - STATIC WATER LEVEL * 0.163
PURGE VOLUME = WATER VOLUME * 3

VOLUME PURGED 9.5 REL. RECHARGE RATE: (GOOD)/POOR(DRY)

WEATHER CONDITIONS COOL AND CLOUDY

OTHER FIELD EQUIPMENT NONE

COMMENTS

SOK

APPENDIX B

ANALYTICAL SYSTEMS - MUNICIPAL SUPPLY SYSTEMS

APPENDIX B1

PRINCESS LAKE WATER AND SEWAGE UTILITY
WATER QUALITY DATA

IWC Services, Inc.

March 10, 1989

Mr. Unie Brooks
Princess Lake Water & Sewage Util.
P. O. Box 218
Nineveh, IN 46164

Dear Mr. Brooks:

Enclosed are the USEPA Volatile Organic Compound (VOC) analyses for Princess Lake Water & Sewage Util. This report can be used to meet EPA monitoring requirements. You should refer to the previous correspondence you have received from the USEPA regarding your specific reporting requirements to the regulatory authorities.

To interpret results, "<" means "less-than" and no compound was found. Also note that the data is reported in ug/L and 1 ug/L is equal to 0.001 mg/L.

For your convenience, an extra copy is included.

If you have any questions call 1-317-263-6396.

Sincerely,

Floyd W. Beal
Senior Chemist

FWB/alk
enc.

Post Office Box 1220, Indianapolis, Indiana 46206

Volatile Organic Chemicals
Indianapolis Water Company Laboratory

March 8, 1989

Mr. Unie Brooks
Princess Lake Water & Sewage Util.
P. O. Box 218
Nineveh, IN 46164

PWS Number:xxxxxxx 5241007
Utility--Princess Lake Water & Sewage Util
Method/Detector: 524.1 GC/MS
Date of Analysis: 03/07/89
Sampler's Name: U Brooks
Analyst:RD Welker RD Welker

Lab ID	Collection Date/Time	Sample Location
	02/27/89	Composited:
2230b	1:00pm	Well #1
2231b	1:20pm	Well #4
2232b	1:30pm	Well #5
2233b	1:40pm	Well #5a

Compound	ug/L
Regulated VOC's:	
Benzene	<0.12
Carbon Tetrachloride	<0.16
p-Dichlorobenzene	<0.28
1,2-Dichloroethane	<0.31
1,1-Dichloroethylene	<0.21
1,1,1-Trichloroethane	<0.16
Trichloroethylene	<0.08
Vinyl Chloride	<0.20
Unregulated VOC's List 1:	
Bromobenzene	<0.22
Bromodichloromethane	<0.20
Bromoform	<0.43
Bromomethane	<0.25
Chlorobenzene	<0.15
Chlorodibromomethane	<0.16
Chloroethane	<0.62
Chloroform	<0.16
Chloromethane	<0.17
o-Chlorotoluene	<0.46
p-Chlorotoluene	<0.14
Dibromomethane	<0.12
m-Dichlorobenzene	<0.14
o-Dichlorobenzene	<0.14
trans-1,2-Dichloroethylene	<0.12
cis-1,2-Dichloroethylene	<0.12
Dichloromethane	<0.12
1,1-Dichloroethane	<0.08
1,1-Dichloropropene	<0.11
1,2-Dichloropropane	<0.11
1,3-Dichloropropane	<0.15
cis-1,3-Dichloropropene	<0.27
trans-1,3-Dichloropropene	<0.21
2,2-Dichloropropane	<0.23
Ethylbenzene	<0.15
Styrene	<0.17
1,1,2-Trichloroethane	<0.11
1,1,1,2-Tetrachloroethane	<0.14
1,1,2,2-Tetrachloroethane	<0.20
Tetrachloroethylene	<0.31
1,2,3-Trichloropropane	<0.15
Toluene	<0.19
p-Xylene	<0.12
o-Xylene	<0.12
m-Xylene	<0.12
Unregulated Voc's List 2:	
Ethylene dibromide(EDB)	<0.25
1,2-Dibromo-3-Chloropropane (DBCP)	<0.56
Unregulated Voc's List 3:	
Dichlorodifluoromethane	<0.32
Fluorotrichloromethane	<0.18
Bromochloromethane	<0.23
Isopropylbenzene	<0.40
tert-Butylbenzene	<0.26
n-Propylbenzene	<0.25
Hexachlorobutadiene	<0.70
sec-Butylbenzene	<0.25
Isopropyltoluene	<0.40
n-Butylbenzene	<0.44
1,3,5-Trimethylbenzene	<0.28
1,2,4-Trimethylbenzene	<0.26
1,2,4-Trichlorobenzene	<0.36
1,2,3-Trichlorobenzene	<0.48
Naphthalene	<0.62

IWC Services, Inc.
Post Office Box 1220
Indianapolis, Indiana 46206

Volatile Organic Chemicals
Indianapolis Water Company Laboratory

March 8, 1989

Mr. Unie Brooks
Princess Lake Water & Sewage Util.
P. O. Box 218
Nineveh, IN 46164

PWS Number:xxxxxxx 5241007
Utility--Princess Lake Water & Sewage Util
Method/Detector: 524.1 GC/MS
Date of Analysis: 03/06/89
Sampler's Name: U Brooks
Analyst:RD Welker RD Welker

Lab ID	Collection Date/Time	Sample Location
	02/27/89	Composite:
2234b	1:45pm	Well #6
2235b	2:00pm	Well #7
2236b	2:10pm	Well #8

Compound	ug/L
Regulated VOC's:	
Benzene	<0.12
Carbon Tetrachloride	<0.16
p-Dichlorobenzene	<0.28
1,2-Dichloroethane	<0.31
1,1-Dichloroethylene	<0.21
1,1,1-Trichloroethane	<0.16
Trichloroethylene	<0.08
Vinyl Chloride	<0.20
Unregulated VOC's List 1:	
Bromobenzene	<0.22
Bromodichloromethane	<0.20
Bromoform	<0.43
Bromomethane	<0.25
Chlorobenzene	<0.15
Chlorodibromomethane	<0.16
Chloroethane	<0.62
Chloroform	<0.16
Chloromethane	<0.17
o-Chlorotoluene	<0.46
p-Chlorotoluene	<0.14
Dibromomethane	<0.12
m-Dichlorobenzene	<0.14
o-Dichlorobenzene	<0.14
trans-1,2-Dichloroethylene	<0.12
cis-1,2-Dichloroethylene	<0.12
Dichloromethane	<0.12
1,1-Dichloroethane	<0.08
1,1-Dichloropropene	<0.11
1,2-Dichloropropane	<0.11
1,3-Dichloropropane	<0.15
cis-1,3-Dichloropropene	<0.27
trans-1,3-Dichloropropene	<0.21
2,2-Dichloropropane	<0.23
Ethylbenzene	<0.15
Styrene	<0.17
1,1,2-Trichloroethane	<0.11
1,1,1,2-Tetrachloroethane	<0.14
1,1,2,2-Tetrachloroethane	<0.20
Tetrachloroethylene	<0.31
1,2,3-Trichloropropane	<0.15
Toluene	<0.19
p-Xylene	<0.12
o-Xylene	<0.12
m-Xylene	<0.12
Unregulated Voc's List 2:	
Ethylene dibromide(EDB)	<0.25
1,2-Dibromo-3-Chloropropane (DBCP)	<0.56
Unregulated Voc's List 3:	
Dichlorodifluoromethane	<0.32
Fluorotrichloromethane	<0.18
Bromochloromethane	<0.23
Isopropylbenzene	<0.40
tert-Butylbenzene	<0.26
n-Propylbenzene	<0.25
Hexachlorobutadiene	<0.70
sec-Butylbenzene	<0.25
Isopropyltoluene	<0.40
n-Butylbenzene	<0.44
1,3,5-Trimethylbenzene	<0.28
1,2,4-Trimethylbenzene	<0.26
1,2,4-Trichlorobenzene	<0.36
1,2,3-Trichlorobenzene	<0.48
Naphthalene	<0.62

IWC Services, Inc.
Post Office Box 1220
Indianapolis, Indiana 46206

find DW-Acq that sample will recieve this - & post appropriately

IWC SERVICES, INC.

A subsidiary of IWC Resources Corporation

Volatile Organic Compounds

Facility Address:
Mr. Unie Brooks
Prince's Lake Water & Sewage Util.
P. O. Box 218
Nineveh, IN 46164
PWS Number: 5241007
Utility-Princess Lake Water & Sewage Util
Composite:

Sample Receipt Date:03/11/92
Report Date:03/20/92
Method/Detector: 524.2 GC/MS
Date of Analysis:03/13/92
Sampler's Name:D Day
Analyst:RD Welker RDWelker

Lab Cert.#: C-49-02
Field Treatment:
Iced
HCl

Lab ID	5424a	5425a	5426a	5427a
Collection Date/Time	03/10/92 9:10am	03/10/92 9:38am	03/10/92 8:53am	03/10/92 8:43am
Sample Location	Well No.1	Well No.4	Well No.5	Well No.5A

ID#	Compound	D.L. ug/L	Result ug/L	ID#	Compound	D.L. ug/L	Result ug/L
	Regulated Contaminants			2978	1,1-Dichloroethane	Not Analyze	
2990	Benzene	0.50	N.D.	2972	cis-1,2-Dichloroethylene	Not Analyze	
2982	Carbon Tetrachloride	0.50	N.D.	2979	trans-1,2-Dichloroethylene	Not Analyze	
2969	p-Dichlorobenzene	0.50	N.D.	2964	Dichloromethane	Not Analyze	
2980	1,2-Dichloroethane	0.50	N.D.	2983	1,2-Dichloropropane	Not Analyze	
2977	1,1-Dichloroethylene	0.50	N.D.	2412	1,3-Dichloropropane	Not Analyze	
2981	1,1,1-Trichloroethane	0.50	N.D.	2416	2,2-Dichloropropane	Not Analyze	
2984	Trichloroethylene	0.50	N.D.	2410	1,1-Dichloropropene	Not Analyze	
2976	Vinyl Chloride	0.50	N.D.	2413	1,3-Dichloropropene	Not Analyze	
	Trihalomethanes			2992	Ethylbenzene	Not Analyze	
2943	Bromodichloromethane	Not Analyzed		2232	Ethylene Dibromide (EDB)	Not Analyze	
2942	Bromoform	Not Analyzed		2218	Fluorotrichloromethane	Not Analyze	
2944	Chlorodibromomethane	Not Analyzed		2246	Hexachlorobutadiene	Not Analyze	
2941	Chloroform	Not Analyzed		2994	Isopropylbenzene	Not Analyze	
	Unregulated Contaminants			2465	Isopropyltoluene	Not Analyze	
2993	Bromobenzene	Not Analyzed		2248	Naphthalene	Not Analyze	
2430	Bromochloromethane	Not Analyzed		2998	n-Propylbenzene	Not Analyze	
2214	Bromomethane	Not Analyzed		2996	Styrene	Not Analyze	
2422	n-Butylbenzene	Not Analyzed		2986	1,1,1,2-Tetrachloroethane	Not Analyze	
2428	sec-Butylbenzene	Not Analyzed		2988	1,1,2,2-Tetrachloroethane	Not Analyze	
2426	tert-Butylbenzene	Not Analyzed		2987	Tetrachloroethylene	Not Analyze	
2989	Chlorobenzene	Not Analyzed		2991	Toluene	Not Analyze	
2216	Chloroethane	Not Analyzed		2420	1,2,3-Trichlorobenzene	Not Analyze	
2210	Chloromethane	Not Analyzed		2378	1,2,4-Trichlorobenzene	Not Analyze	
2965	o-Chlorotoluene	Not Analyzed		2985	1,1,2-Trichloroethane	Not Analyze	
2966	p-Chlorotoluene	Not Analyzed		2414	1,2,3-Trichloropropane	Not Analyze	
2983	1,2-Dibromo-3-Chloropropane	Not Analyzed		2418	1,2,4-Trimethylbenzene	Not Analyze	
2408	Dibromomethane	Not Analyzed		2424	1,3,5-Trimethylbenzene	Not Analyze	
2967	m-Dichlorobenzene	Not Analyzed		2995	m-Xylene	Not Analyze	
2968	o-Dichlorobenzene	Not Analyzed		2997	o-Xylene	Not Analyze	
2212	Dichlorodifluoromethane	Not Analyzed		2962	p-Xylene	Not Analyze	

1220 Waterway Boulevard • P.O. Box 1220 • Indianapolis, Indiana 46206 • Telephone: 317-639-1501 • FAX: 317-263-6448

APPENDIX B2

EDINBURGH UTILITIES
WATER QUALITY DATA

SIECO ORGANIC LABORATORIES
VOLATILE ORGANIC COMPOUNDS
EPA METHOD #524

#4 Well only

Client :EDINBURGH UTILITIES
Client sample:WELL #1,3,4
SIECO number :321134/5/6
Sampled by :M. PENDLETON
Date sampled :02/11/93
Date Reported:02/23/93
PWSID # :5241002 Lab Certification No: C-03-02

Analyst Notes:

NO MCL EXCEEDED. ALL DETECTION LIMITS LESS THAN 0.5 UG/L
WELLS 1,3, AND 4 COMPOSITED USING 8.3 ML FROM EACH.
1,1,1-TCA DETECTED AT 1 UG/L ACCOUNTING FOR DILUTION
FACTOR. INSTRUCTED BY CLIENT TO START REANALYSIS WITH
WELL #4, ONLY REANALYZE 1,3 IF 1,1,1-TCA NOT DETECTED.

Tentatively Identified Compounds (Library search results)

Compound Name or Type	Est'd Amt.(assuming RF=1)

Data Qualifier Flags (found in column of report labeled Q)

Flag	Meaning
B	Found in blank
E	Exceeds calibration range, results are estimated
J	Detected, below quantitation range
ND	Not detected

David Macdonald
David Macdonald
Organic Lab Manager

SIECO Inc.
629 Washington St.
PO Box 407
Columbus, IN. 47201

Phone (812) 372-9911 Fax (812) 372-7190

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: SIECO, INC Contract:

Lab Code: C-03-02

Matrix: (soil/water) WATER Lab Sample ID: 321134/5/6

Sample wt/vol: 25 (g/ml) ML Lab File ID: >C2056

Level: (low/med) LOW Date Received: 02/11/93

% Moisture: not dec. Date Analyzed: 02/15/93

Column: (pack/cap) CAP Dilution Factor: 3.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
75-71-8	Dichlorodifluoromethane		ND
74-87-3	Chloromethane		ND
74-83-9	Bromomethane		ND
50-01-4	Vinyl Chloride		ND
50-00-3	Chloroethane		ND
50-09-2	Methylene Chloride		ND
50-50-4	1,1-Dichloroethene		ND
50-34-3	1,1-Dichloroethane		ND
590-20-7	2,2-Dichloropropane		ND
156-60-5	t-1,2-Dichloroethene		ND
156-59-4	c-1,2-Dichloroethene		ND
74-97-5	Bromochloromethane		ND
67-66-3	Chloroform		ND
107-06-2	1,2-Dichloroethane		ND
71-50-6	1,1,1-Trichloroethane	1.0	J
50-2350	Carbon Tetrachloride		ND
563-58-6	1,1-Dichloropropene		ND
50-27-4	Bromodichloromethane		ND
78-8750	1,2-Dichloropropane		ND
74-95-3	Dibromomethane		ND
10061-0150	cis-1,3-dichloropropene		ND
79-01-6	Trichloroethene		ND
124-48-1	Dibromochloromethane		ND
106-93-4	1,2-Dibromoethane		ND
79-0050	1,1,2-Trichloroethane		ND
71-43-2	Benzene		ND
10061-02-6	trans-1,3-Dichloropropene		ND
50-50-2	Bromoform		ND
98-82-8	Isopropylbenzene		ND
127-18-4	Tetrachloroethene		ND
142-28-9	1,3-Dichloropropane		ND
79-3450	1,1,2,2-Tetrachloroethane		ND
108-88-3	Toluene		ND
108-90-7	Chlorobenzene		ND

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: SIECO, INC Contract:

Lab Code: C-03-02

Matrix: (soil/water) WATER Lab Sample ID: 321134/5/6

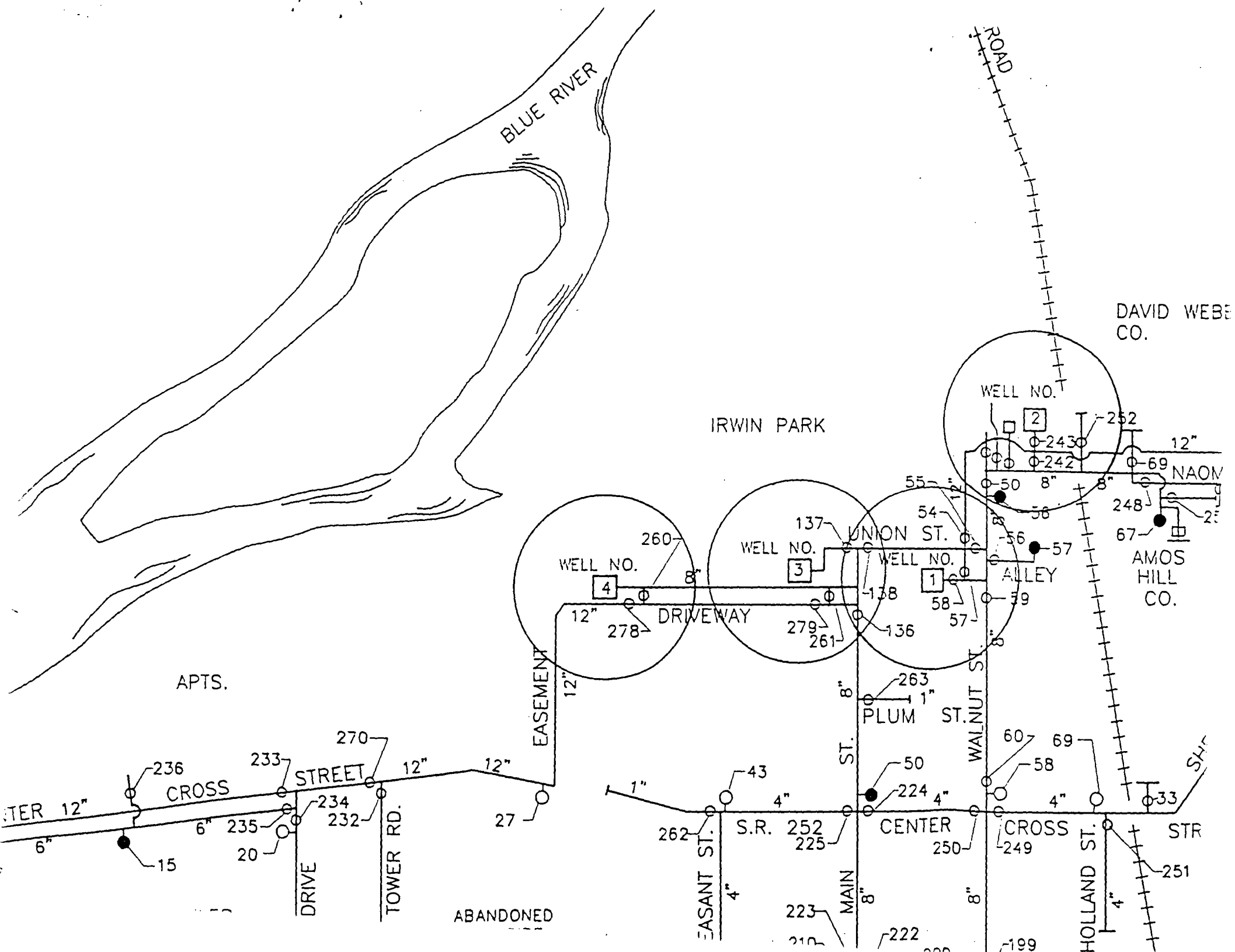
Sample wt/vol: 25 (g/ml) ML Lab File ID: >C2056

Level: (low/med) LOW Date Received: 02/11/93

% Moisture: not dec. Date Analyzed: 02/15/93

Column: (pack/cap) CAP Dilution Factor: 3.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
100-41-4	Ethyl benzene		ND
100-4250	Styrene		ND
XX-XX-X	m/p-Xylene		ND
95-47-6	ortho-Xylene		ND
108-86-1	Bromobenzene		ND
96-18-4	1,2,3-trichloropropane		ND
79-34-5	1,1,2,2-Tetrachloroethane		ND
103-65-1	N-propylbenzene		ND
95-49-80	2-Chlorotoluene		ND
106-43-4	4-Chlorotoluene		ND
108-67-8	1,3,5-Trimethylbenzene		ND
98-06-6	Tertbutylbenzene		ND
95-63-6	1,2,4-Trimethylbenzene		ND
135-98-8	sec-Butylbenzene		ND
79-01-6	Trichlorofluoromethane		ND
5041-73-1	1,3-Dichlorobenzene		ND
106-46-7	1,4-Dichlorobenzene		ND
99-87-6	p-Isopropyltoluene		ND
95-50-1	1,2-Dichlorobenzene		ND
104-51-8	n-Butylbenzene		ND
96-12-8	1,2-Dibromo-3-chloropropane		ND
120-82-1	1,2,4-Trichlorobenzene		ND
87-68-3	Hexachlorobutadiene		ND
91-20-3	Naphthalene		ND
87-61-60	1,2,3-Trichlorobenzene		ND


BLUE RIVER
ROAD
DAVID WEBB CO.
IRWIN PARK
WELL NO. 2
WELL NO. 3
WELL NO. 4
WELL NO. 1
UNION ST.
ALLEY
AMOS HILL CO.
DRIVEWAY
EASEMENT
APTS.
PLUM ST.
WALNUT ST.
CROSS STREET
TOWER RD.
DRIVE
S.R. 252
CENTER
MAIN
ABANDONED
HOLLAND ST.
252
243
242
69
NAOM
50
248
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APPENDIX C

ENDANGERED, THREATENED, OR RARE SPECIES AT ARFTA
(Source: Indiana DNR, 1993)

April 21, 1993

ENDANGERED, THREATENED, AND RARE SPECIES
AND HIGH QUALITY NATURAL COMMUNITIES AND NATURAL AREAS DOCUMENTED FROM
A SITE ENCOMPASSING ATTERBURY RESERVE FORCES TRAINING AREA IN INDIANA

Element Name	Common Name	State	Fed	Townrange	Sec		Date	Comments
BEANBLOSSOM QUADRANGLE								
LYNX RUFUS	BOBCAT	SE		010N003E	33	SWQ SWQ NEQ	1989	unconfirmed
CROTALUS HORRIDUS	TIMBER RATTLESNAKE	ST		010N003E	36	OR 010N004E S31	1980	
COLUMBUS QUADRANGLE								
AMMOCRYPTA PELLUCIDA	EASTERN SAND DARTER	SSC	C2	009N005E		AT COLUMBUS	1942	
TAXIDEA TAXUS	BADGER	ST		009N005E	02	AND S11	1980	
CLONOPHIS KIRTLANDII	KIRTLAND'S SNAKE	ST	C2	009N005E	22	OR S27	1990	
FUNDULUS CATENATUS	NORTHERN STUDFISH	SSC		009N006E	19	SWQ SEQ, & NEQ NWQ S30	1985	
EDINBURG QUADRANGLE								
ATTERBURY FISH-WILDLIFE AREA								
EPIOBLASMA TORULOSA RANGIANA	NORTHERN RIFFLESHELL	SE	C1	011N005E	29	NEQ SEQ NWQ	1990	WEATHERED OR SUBFOSSIL
EPIOBLASMA TRIQUETRA	SNUFFBOX	SE	C2	011N005E	29	NEQ SEQ NWQ	1990	FRESH DEAD
LAMPSILIS FASCIOLA	WAVY-RAYED LAMPMUSSEL	SSC		011N005E	29	NEQ SEQ NWQ	1990	WEATHERED OR SUBFOSSIL
OBOVARIA SUBROTUNDA	ROUND HICKORYNUT	WL		011N005E	29	NEQ SEQ NWQ	1990	FRESH DEAD
PLEUROBEMA CLAVA	CLUBSHELL	SE	C1	011N005E	29	NEQ SEQ NWQ	1990	WEATHERED OR SUBFOSSIL
PTYCHOBRANCHUS FASCIOLARIS	KIDNEYSHELL	WL		011N005E	29	NEQ SEQ NWQ	1990	FRESH DEAD
QUADRULA CYLINDRICA CYLINDRICA	RABBITSFOOT	SE		011N005E	29	NEQ SEQ NWQ	1990	WEATHERED OR SUBFOSSIL
SIMPSONAIAS AMBIGUA	SALAMANDER MUSSEL	SSC	C2	011N005E	29	NEQ SEQ NWQ	1990	WEATHERED OR SUBFOSSIL
VILLOSA FABALIS	RAYED BEAN	SSC	C2	011N005E	29	NEQ SEQ NWQ	1990	FRESH DEAD
VILLOSA LIENOSA	LITTLE SPECTACLECASE	SSC		011N005E	29	NEQ SEQ NWQ	1990	WEATHERED OR SUBFOSSIL
FRANKLIN QUADRANGLE								
LYNX RUFUS	BOBCAT	SE		011N004E	08	NEQ SWQ SWQ	1992	UNCONFIRMED
ALASMIDONTA VIRIDIS	SLIPPERSHELL MUSSEL	WL		011N005E 011N005E	05 08	SEQ SWQ SWQ & SWQ SEQ SWQ NEQ NWQ NWQ & NWQ NEQ NWQ	1990	WEATHERED OR SUBFOSSIL
EPIOBLASMA TRIQUETRA	SNUFFBOX	SE	C2	011N005E 011N005E	05 08	SEQ SWQ SWQ & SWQ SEQ SWQ NEQ NWQ NWQ & NWQ NEQ NWQ	1990	WEATHERED OR SUBFOSSIL
TOXOLASMA PARVUS	LILLIPUT	WL		011N005E 011N005E	05 08	SEQ SWQ SWQ & SWQ SEQ SWQ NEQ NWQ NWQ & NWQ NEQ NWQ	1990	FRESH DEAD
OBOVARIA SUBROTUNDA	ROUND HICKORYNUT	WL		011N005E	08	COMMON LINE SWQ SWQ NWQ & NWQ NWQ SWQ	1990	WEATHERED OR SUBFOSSIL
TOXOLASMA PARVUS	LILLIPUT	WL		011N005E	08	COMMON LINE SWQ SWQ NWQ & NWQ NWQ SWQ	1990	WEATHERED OR SUBFOSSIL
TOXOLASMA PARVUS	LILLIPUT	WL		011N005E	17	NWQ NEQ NWQ	1990	WEATHERED OR SUBFOSSIL
ATTERBURY FISH-WILDLIFE AREA								
RALLUS ELEGANS	KING RAIL	SE		011N004E	13	SWQ	1986	
IXOBRYCHUS EXILIS	LEAST BITTERN	SSC		011N004E	14	SEQ	1986	
TYTO ALBA	BARN OWL	SE		011N004E	23		1990	
CIRCUS CYANEUS	NORTHERN HARRIER	SE		in the F&W Area			1980	
MUSTELA NIVALIS	LEAST WEASEL	SSC		in the F&W Area			1980	
NYCTICORAX NYCTICORAX	BLACK-CROWNED NIGHT-HERON	SE		011N004E	13		1985	
ZANNICHELLIA PALUSTRIS	HORNED PONDWEED	SE		011N004E	14	CENTER NH SWQ	1979	
AMMODRAMUS HENSLOWII	HENSLOW'S SPARROW	ST	C2	011N004E	22	NEQ NEQ	1988	
BARTRAMIA LONGICAUDA	UPLAND SANDPIPER	SE		011N004E	22	NEQ NEQ	1988	
TAXIDEA TAXUS	BADGER	ST		011N005E	19	NEQ SEQ	1985	

STATE: SX=extirpated, SE=endangered, ST=threatened, SR=rare, SSC=special concern, WL=watch list, SG=significant
FEDERAL: LE=endangered, LT=threatened, C1=proposed to be listed, C2=under review, 3C=delisted

ENDANGERED, THREATENED, AND RARE SPECIES
AND HIGH QUALITY NATURAL COMMUNITIES AND NATURAL AREAS DOCUMENTED FROM
A SITE ENCOMPASSING ATTERBURY RESERVE FORCES TRAINING AREA IN INDIANA

Element Name	Common Name	State	Fed	Townrange	Sec		Date	Comments
EPIOBLASMA TORULOSA RANGIANA	NORTHERN RIFFLESHELL	SE	C1	011N005E	20	NEQ NWQ SWQ	1990	WEATHERED OR SUBFOSSIL
OBOVARIA SUBROTUNDA	ROUND HICKORYNUT	WL		011N005E	20	NEQ NWQ SWQ	1990	WEATHERED OR SUBFOSSIL
PLEUROBEMA CLAVA	CLUBSHELL	SE	C1	011N005E	20	NEQ NWQ SWQ	1990	WEATHERED OR SUBFOSSIL
PTYCHOBRANCHUS FASCIOLARIS	KIDNEYSHELL	WL		011N005E	20	NEQ NWQ SWQ	1990	LIVE
QUADRULA CYLINDRICA CYLINDRICA	RABBITSFOOT	SE		011N005E	20	NEQ NWQ SWQ	1990	WEATHERED OR SUBFOSSIL
VILLOSA FABALIS	RAYED BEAN	SSC	C2	011N005E	20	NEQ NWQ SWQ	1990	FRESH DEAD
VILLOSA LIENOSA	LITTLE SPECTACLECASE	SSC		011N005E	20	NEQ NWQ SWQ	1990	WEATHERED OR SUBFOSSIL
MARIETTA QUADRANGLE								
EPIOBLASMA TRIQUETRA	SNUFFBOX	SE	C2	011N005E 011N005E	09 04	NEQ NWQ NEQ SEQ SWQ SEQ	1990	WEATHERED OR SUBFOSSIL
OBOVARIA SUBROTUNDA	ROUND HICKORYNUT	WL		011N005E 011N005E	09 04	NEQ NWQ NEQ SEQ SWQ SEQ	1990	WEATHERED OR SUBFOSSIL
PLEUROBEMA CLAVA	CLUBSHELL	SE	C1	011N005E 011N005E	09 04	NEQ NWQ NEQ SEQ SWQ SEQ	1990	WEATHERED OR SUBFOSSIL
PTYCHOBRANCHUS FASCIOLARIS	KIDNEYSHELL	WL		011N005E 011N005E	09 04	NEQ NWQ NEQ SEQ SWQ SEQ	1990	FRESH DEAD
QUADRULA CYLINDRICA CYLINDRICA	RABBITSFOOT	SE		011N005E 011N005E	09 04	NEQ NWQ NEQ SEQ SWQ SEQ	1990	WEATHERED OR SUBFOSSIL
VILLOSA FABALIS	RAYED BEAN	SSC	C2	011N005E 011N005E	09 04	NEQ NWQ NEQ SEQ SWQ SEQ	1990	FRESH DEAD
VILLOSA LIENOSA	LITTLE SPECTACLECASE	SSC		011N005E 011N005E	09 04	NEQ NWQ NEQ SEQ SWQ SEQ	1990	FRESH DEAD
LAMPSILIS FASCIOLA	WAVY-RAYED LAMPMUSSEL	SSC		011N005E	17	NEQ NEQ NEQ	1990	WEATHERED OR SUBFOSSIL
OBOVARIA SUBROTUNDA	ROUND HICKORYNUT	WL		011N005E	17	NEQ NEQ NEQ	1990	WEATHERED OR SUBFOSSIL
PLEUROBEMA CLAVA	CLUBSHELL	SE	C1	011N005E	17	NEQ NEQ NEQ	1990	WEATHERED OR SUBFOSSIL
PTYCHOBRANCHUS FASCIOLARIS	KIDNEYSHELL	WL		011N005E	17	NEQ NEQ NEQ	1990	FRESH DEAD
QUADRULA CYLINDRICA CYLINDRICA	RABBITSFOOT	SE		011N005E	17	NEQ NEQ NEQ	1990	WEATHERED OR SUBFOSSIL
SIMPSONAIAS AMBIGUA	SALAMANDER MUSSEL	SSC	C2	011N005E	17	NEQ NEQ NEQ	1990	WEATHERED OR SUBFOSSIL
VILLOSA FABALIS	RAYED BEAN	SSC	C2	011N005E	17	NEQ NEQ NEQ	1990	WEATHERED OR SUBFOSSIL
VILLOSA LIENOSA	LITTLE SPECTACLECASE	SSC		011N005E	17	NEQ NEQ NEQ	1990	WEATHERED OR SUBFOSSIL
ATTERBURY FISH AND WILDLIFE AREA				011N005E	20			
NASHVILLE QUADRANGLE								
ANTENNARIA SOLITARIA	SINGLE-HEAD PUSSYTOES	WL		009N003E	01		1980	
NEW BELLSVILLE QUADRANGLE								
CRATAEGUS PRONA	ILLINOIS HAWTHORN	SE		009N004E	9 mi	sw of Edinburg	1913	
LYNX RUFUS	BOBCAT	SE		009N004E	22		1985	unconfirmed
SOLIDAGO HISPIDA	HAIRY GOLDENROD	WL		009N004E	31	SEQ SWQ NEQ	1988	
SPIRANTHES OCHROLEUCA	YELLOW NODDING LADIES'-TRESSES	ST		009N004E	31	SEQ SWQ NEQ	1988	
AMMODRAMUS HENSLOWII	HENSLOW'S SPARROW	ST	C2	011N005E	30	AND S32 + S12 009N004E, S6 010N005E, S27, 35 011N004E	1990	
ATTERBURY RESERVE FORCES TRAINING AREA								
LYNX RUFUS	BOBCAT	SE		009N004E	02	SEQ SEQ	1990	
HELMITHEROS VERMIVORUS	WORM-EATING WARBLER	SSC		009N004E	03	SEQ SEQ AND SWQ NWQ 36 010N004E	1990	

STATE: SX=extirpated, SE=endangered, ST=threatened, SR=rare, SSC=special concern, WL=watch list, SG=significant
FEDERAL: LE=endangered, LT=threatened, C1=proposed to be listed, C2=under review, 3C=delisted

ENDANGERED, THREATENED, AND RARE SPECIES
AND HIGH QUALITY NATURAL COMMUNITIES AND NATURAL AREAS DOCUMENTED FROM
A SITE ENCOMPASSING ATTERBURY RESERVE FORCES TRAINING AREA IN INDIANA

Element Name	Common Name	State	Fed	Townrange	Sec		Date	Comments
MNIOTILTA VARIA	BLACK-AND-WHITE WARBLER	SSC		009N004E	03	SEQ SEQ SEQ ALSO SWQ SWQ NWQ 36 010N004E	1990	
GERARDIA FASCICULATA	CLUSTERED FOXGLOVE	WL		009N004E	10	NWQ NEQ	1990	
SPIRANTHES OCHROLEUCA	YELLOW NODDING LADIES'-TRESSES	ST		009N004E	10	SEQ SWQ SEQ	1990	
WILSONIA CITRINA	HOODED WARBLER	SSC		009N004E	13	SEQ SEQ, AND 35,36 & 19,31 010N005E, SEC 35 011N004E	1990	
CHIMAPHILA MACULATA	SPOTTED WINTERGREEN	WL		009N004E	15	NEQ NEQ	1990	
CHIMAPHILA MACULATA	SPOTTED WINTERGREEN	WL		009N004E	15	SEQ NEQ	1990	
GERARDIA FASCICULATA	CLUSTERED FOXGLOVE	WL		009N004E	15	SEQ NWQ NEQ	1990	
PLATANTHERA LACERA	GREEN-FRINGE ORCHIS	WL		009N004E	15	NEQ NEQ	1990	
SPIRANTHES OCHROLEUCA	YELLOW NODDING LADIES'-TRESSES	ST		009N004E	15	SEQ NWQ NEQ	1990	
SPIRANTHES OVALIS	LESSER LADIES'-TRESSES	WL		009N004E	15	NEQ NEQ	1990	
SPIRANTHES OVALIS	LESSER LADIES'-TRESSES	WL		009N004E	15	SEQ NEQ	1990	
ATTERBURY RESERVE FORCES TRAINING AREA-ATTERBURY NOTABLE #14								
FOREST - UPLAND DRY-MESIC	DRY-MESIC UPLAND FOREST	SG		009N004E	04	SEQ + SEC 3	1990	
FOREST - UPLAND MESIC	MESIC UPLAND FOREST	SG		009N004E	04	SEQ + SEC 03	1990	
ANTENNARIA SOLITARIA	SINGLE-HEAD PUSSYTOES	WL		009N004E	04	SEQ	1990	
ISOTRIA VERTICILLATA	LARGE WHORLED POGONIA	WL		009N004E	04	SEQ	1990	
NINEVEH QUADRANGLE								
HELMITHEROS VERMIVORUS	WORM-EATING WARBLER	SSC		009N004E	03	SEQ SEQ AND SWQ NWQ 36 010N004E	1990	
LYNX RUFUS	BOBCAT	SE		010N005E			1986	
WILSONIA CITRINA	HOODED WARBLER	SSC		009N004E	13	SEQ SEQ, AND 35,36, & 19,31 010N005E, SEC 35 011N004E	1990	
EPIOBLASMA TORULOSA RANGIANA	NORTHERN RIFFLESHELL	SE	C1	011N005E	29	NEQ SEQ NWQ	1990	WEATHERED OR SUBFOSSIL
EPIOBLASMA TRIQUETRA	SNUFFBOX	SE	C2	011N005E	29	NEQ SEQ NWQ	1990	FRESH DEAD
LAMPSILIS FASCIOLA	WAVY-RAYED LAMPMUSSEL	SSC		011N005E	29	NEQ SEQ NWQ	1990	WEATHERED OR SUBFOSSIL
OBOVARIA SUBROTUNDA	ROUND HICKORYNUT	WL		011N005E	29	NEQ SEQ NWQ	1990	FRESH DEAD
PLEUROBEMA CLAVA	CLUBSHELL	SE	C1	011N005E	29	NEQ SEQ NWQ	1990	WEATHERED OR SUBFOSSIL
PTYCHOBRANCHUS FASCIOLARIS	KIDNEYSHELL	WL		011N005E	29	NEQ SEQ NWQ	1990	FRESH DEAD
QUADRULA CYLINDRICA CYLINDRICA	RABBITSFOOT	SE		011N005E	29	NEQ SEQ NWQ	1990	WEATHERED OR SUBFOSSIL
SIMPSONAIAS AMBIGUA	SALAMANDER MUSSEL	SSC	C2	011N005E	29	NEQ SEQ NWQ	1990	WEATHERED OR SUBFOSSIL
VILLOSA FABALIS	RAYED BEAN	SSC	C2	011N005E	29	NEQ SEQ NWQ	1990	FRESH DEAD
VILLOSA LIENOSA	LITTLE SPECTACLECASE	SSC		011N005E	29	NEQ SEQ NWQ	1990	WEATHERED OR SUBFOSSIL
SPIRANTHES OCHROLEUCA	YELLOW NODDING LADIES'-TRESSES	ST		010N004E	35	NEQ SWQ + NWQ SWQ	1990	
BARTRAMIA LONGICAUDA	UPLAND SANDPIPER	SE		011N004E	25	SEQ NWQ	1988	
ANTENNARIA SOLITARIA	SINGLE-HEAD PUSSYTOES	WL		010N004E	27	SWQ	1990	
ISOTRIA VERTICILLATA	LARGE WHORLED POGONIA	WL		010N004E	27	SWQ	1990	
ANTENNARIA SOLITARIA	SINGLE-HEAD PUSSYTOES	WL		010N004E	34	NWQ SWQ	1990	
ATTERBURY FISH-WILDLIFE AREA-ATTERBURY UPLAND								
BARTRAMIA LONGICAUDA	UPLAND SANDPIPER	SE		011N005E	30	SWQ NWQ	1988	
AMMODRAMUS HENSLOWII	HENSLOW'S SPARROW	ST	C2	011N005E	30	AND S32 + S12 009N004E, S6 010N005E, S27, 35 011N004E	1990	
ATTERBURY RESERVE FORCES TRAINING AREA								
CISTOTHORUS PLATENSIS	SEDGE WREN	ST		010N004E	01	SWQ NEQ AND NEQ NWQ 6 010N005E	1990	

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ENDANGERED, THREATENED, AND RARE SPECIES
AND HIGH QUALITY NATURAL COMMUNITIES AND NATURAL AREAS DOCUMENTED FROM
A SITE ENCOMPASSING ATTERBURY RESERVE FORCES TRAINING AREA IN INDIANA

Element Name	Common Name	State	Fed..	Townrange	Sec		Date	Comments
FUNDULUS CATENATUS	NORTHERN STUDFISH	SSC		010N004E	01	SWQ SEQ & NEQ SEQ 8 010N005E & 35 011N004E	1990	
FUNDULUS CATENATUS	NORTHERN STUDFISH	SSC		010N004E	03		1990	
ACCIPITER COOPERII	COOPER'S HAWK	SSC		010N004E	09	SWQ NWQ NEQ AND SEQ SEQ SEQ 4; NWQ NWQ 17 & SWQ NWQ 29 010N005E.	1990	
TAXIDEA TAXUS	BADGER	ST		010N004E	12		1985	
ANTENNARIA SOLITARIA	SINGLE-HEAD PUSSYTOES	WL		010N004E	28	SWQ	1990	
CAREX ABSCONDITA	THICKET SEDGE	WL		010N004E	28	SWQ	1990	
HYDRASTIS CANADENSIS	GOLDEN SEAL	WL	3C	010N004E	28	SWQ	1990	
ANTENNARIA SOLITARIA	SINGLE-HEAD PUSSYTOES	WL		010N004E	33	NWQ	1990	
CAREX ABSCONDITA	THICKET SEDGE	WL		010N004E	33	NWQ	1990	
PANAX QUINQUEFOLIUS	AMERICAN GINSENG	WL	3C	010N004E	33	NWQ	1990	
CAREX ABSCONDITA	THICKET SEDGE	WL		010N004E	35	NWQ NEQ	1990	
GERARDIA FASCICULATA	CLUSTERED FOXGLOVE	WL		010N004E	35	NWQ SWQ	1990	
PANAX QUINQUEFOLIUS	AMERICAN GINSENG	WL	3C	010N004E	35	NEQ	1990	
SPIRANTHES OCHROLEUCA	YELLOW NODDING LADIES'-TRESSES	ST		010N004E	35	NEQ SWQ + NWQ SWQ	1990	
LYNX RUFUS	BOBCAT	SE		010N005E			1986	
ARDEA HERODIAS	GREAT BLUE HERON	WL		010N005E	07	ALSO SEC 18	1990	
BUTEO LINEATUS	RED-SHOULDERED HAWK	SSC		010N005E	19	NEQ SEQ NEQ	1990	
ARDEA HERODIAS	GREAT BLUE HERON	WL		010N005E	30	SWQ NWQ	1987	
MUSTELA NIVALIS	LEAST WEASEL	SSC		011N004E	34	OR SEC 33.	1990	
ATTERBURY RESERVE FORCES TRAINING AREA-ATTERBURY NOTABLE #1								
FOREST - UPLAND DRY-MESIC	DRY-MESIC UPLAND FOREST	SG		010N004E	27	SWQ	1990	
FOREST - UPLAND MESIC	MESIC UPLAND FOREST	SG		010N004E	27	SWQ	1990	
ANTENNARIA SOLITARIA	SINGLE-HEAD PUSSYTOES	WL		010N004E	27	SWQ	1990	
CAREX ABSCONDITA	THICKET SEDGE	WL		010N004E	27	SWQ	1990	
CHIMAPHILA MACULATA	SPOTTED WINTERGREEN	WL		010N004E	27	SWQ	1990	
ISOTRIA VERTICILLATA	LARGE WHORLED POGONIA	WL		010N004E	27	SWQ	1990	
MONOTROPA HYPOPITHYS	AMERICAN PINESAP	WL		010N004E	27	SWQ	1990	
PANAX QUINQUEFOLIUS	AMERICAN GINSENG	WL	3C	010N004E	27	SWQ	1990	
ATTERBURY RESERVE FORCES TRAINING AREA-ATTERBURY NOTABLE #4								
FOREST - UPLAND DRY-MESIC	DRY-MESIC UPLAND FOREST	SG		010N004E	33	SEQ + SWQ 34	1990	
FOREST - UPLAND MESIC	MESIC UPLAND FOREST	SG		010N004E	33	SEQ + SWQ 34	1990	
ANTENNARIA SOLITARIA	SINGLE-HEAD PUSSYTOES	WL		010N004E	34	NWQ SWQ	1990	
CAREX ABSCONDITA	THICKET SEDGE	WL		010N004E	34	SWQ	1990	
CHIMAPHILA MACULATA	SPOTTED WINTERGREEN	WL		010N004E	34	SWQ NWQ	1990	
ISOTRIA VERTICILLATA	LARGE WHORLED POGONIA	WL		010N004E	34	SWQ	1990	
PANAX QUINQUEFOLIUS	AMERICAN GINSENG	WL	3C	010N004E	34	SWQ	1990	
ATTERBURY RESERVE FORCES TRAINING AREA-ATTERBURY NOTABLE #6								
WETLAND - SEEP CIRCUMNEUTRAL	CIRCUMNEUTRAL SEEP	SG		011N005E	32	NWQ	1990	
CAREX LEPTALEA	BRISTLY-STALK SEDGE	WL		011N005E	32	NWQ	1990	
AMMODRAMUS HENSLOWII	HENSLOW'S SPARROW	ST	C2	011N005E	30	AND S32 + S12 009N004E, S6 010N005E, S27, 35 011N004E	1990	
WHIPPORWILL WOODS								
DENDROICA CERULEA	CERULEAN WARBLER	SG	C2	010N004E	29	SWQ	1981	
WILSONIA CITRINA	HOODED WARBLER	SSC		010N004E	29	SWQ	1981	
FOREST - UPLAND DRY	DRY UPLAND FOREST	SG		010N004E	29	ALL (+ NH 32)	1981	
ISOTRIA VERTICILLATA	LARGE WHORLED POGONIA	WL		010N004E	29	+ S32	1981	
TRAFALGAR QUADRANGLE								
CLONOPHIS KIRTLANDII	KIRTLAND'S SNAKE	ST	C2	011N003E	12	WH	1970	

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APPENDIX D

PRELIMINARY ASSESSMENT FORM

EPA Potential Hazardous Waste Site Preliminary Assessment Form

Identification

State: IN | CERCLIS Number:

CERCLIS Discovery Date:

1. General Site Information

Name: Atterbury Reserve Forces Training Area	Street Address: Hospital Road				
City: Edinburgh	State: IN	Zip Code: 46124	County: Johnson	Co. Code:	Cong. Dist:
Latitude: 39 ° 21 ' __.__ "	Longitude: 86 ° 02 ' __.__ "	Approximate Area of Site: 33,000 Acres ____ Square Ft	Status of Site: ☑ Active ☐ Inactive ☐ Not Specified ☐ NA (GW plume, etc.)		

2. Owner/Operator Information

Owner: U.S. Army National Guard		Operator: U.S. Army National Guard	
Street Address: Hospital Road		Street Address: SAME ↓	
City: Edinburgh		City:	
State: IN	Zip Code: 46124	State:	Zip Code:
Telephone: (812) 526-1249		Telephone: ( )	

Type of Ownership:
- ☐ Private
- ☑ Federal Agency — Name: NAT GUARD
- ☐ State
- ☐ Indian
- ☐ County
- ☐ Municipal
- ☐ Not Specified
- ☐ Other

How Initially Identified:
- ☐ Citizen Complaint
- ☐ PA Petition
- ☐ State/Local Program
- ☐ RCRA/CERCLA Notification
- ☑ Federal Program
- ☐ Incidental
- ☐ Not Specified
- ☐ Other

3. Site Evaluator Information

Name of Evaluator: Daniel Dworkin	Agency/Organization: Roy F. Weston, Inc.	Date Prepared: 22 March 1993
Street Address: One Weston Way	City: West Chester	State: PA 19380
Name of EPA or State Agency Contact:	Street Address:	
City:	State:	Telephone: ( )

4. Site Disposition (for EPA use only)

Emergency Response/Removal Assessment Recommendation: ☐ Yes ☐ No Date: ____	CERCLIS Recommendation: ☐ Higher Priority SI ☐ Lower Priority SI ☐ NFRAP ☐ RCRA ☐ Other ____ Date: ____	Signature: Name (typed): Position:

EPA **Potential Hazardous Waste Site**
Preliminary Assessment Form - Page 2 of 4

CERCLIS Number:

5. General Site Characteristics

Predominant Land Uses Within 1 Mile of Site (check all that apply):
- ☐ Industrial
- ☐ Commercial
- ☑ Residential
- ☐ Forest/Fields
- ☐ Agriculture
- ☐ Mining
- ☐ DOD
- ☐ DOE
- ☐ DOI
- ☐ Other Federal Facility
- ☐ Other

Site Setting:
- ☐ Urban
- ☐ Suburban
- ☑ Rural

Years of Operation:
Beginning Year 1942
Ending Year present
☐ Unknown

Type of Site Operations (check all that apply):
- ☐ Manufacturing (must check subcategory)
  - ☐ Lumber and Wood Products
  - ☐ Inorganic Chemicals
  - ☐ Plastic and/or Rubber Products
  - ☐ Paints, Varnishes
  - ☐ Industrial Organic Chemicals
  - ☐ Agricultural Chemicals (e.g., pesticides, fertilizers)
  - ☐ Miscellaneous Chemical Products (e.g., adhesives, explosives, ink)
  - ☐ Primary Metals
  - ☐ Metal Coating, Plating, Engraving
  - ☐ Metal Forging, Stamping
  - ☐ Fabricated Structural Metal Products
  - ☐ Electronic Equipment
  - ☐ Other Manufacturing
- ☐ Mining
  - ☐ Metals
  - ☐ Coal
  - ☐ Oil and Gas
  - ☐ Non-metallic Minerals
- ☐ Retail
- ☐ Recycling
- ☐ Junk/Salvage Yard
- ☐ Municipal Landfill
- ☑ Other Landfill
- ☐ DOD
- ☐ DOE
- ☐ DOI
- ☐ Other Federal Facility
- ☑ RCRA
  - ☐ Treatment, Storage, or Disposal
  - ☑ Large Quantity Generator
  - ☐ Small Quantity Generator
  - ☐ Subtitle D
    - ☐ Municipal
    - ☐ Industrial
  - ☐ "Converter"
  - ☐ "Protective Filer"
  - ☐ "Non- or Late Filer"
- ☐ Not Specified
- ☐ Other

Waste Generated:
- ☑ Onsite
- ☐ Offsite
- ☐ Onsite and Offsite

Waste Deposition Authorized By:
- ☐ Present Owner
- ☐ Former Owner
- ☐ Present & Former Owner
- ☐ Unauthorized
- ☑ Unknown

Waste Accessible to the Public:
- ☐ Yes
- ☑ No

Distance to Nearest Dwelling, School, or Workplace:
1500 Feet

6. Waste Characteristics Information

Source Type: (check all that apply)	Source Waste Quantity: (include units)	Tier*:
☑ Landfill	270,000 ft²	A
☑ Surface Impoundment	7 ft²	A
☐ Drums		
☐ Tanks and Non-Drum Containers		
☐ Chemical Waste Pile		
☐ Scrap Metal or Junk Pile		
☐ Tailings Pile		
☐ Trash Pile (open dump)		
☐ Land Treatment		
☐ Contaminated Ground Water Plume (unidentified source)		
☐ Contaminated Surface Water/Sediment (unidentified source)		
☐ Contaminated Soil		
☐ Other		
☐ No Sources		

* C = Constituent, W = Wastestream, V = Volume, A = Area

General Types of Waste (check all that apply)
- ☑ Metals
- ☑ Organics
- ☑ Inorganics
- ☐ Solvents
- ☐ Paints/Pigments
- ☐ Laboratory/Hospital Waste
- ☐ Radioactive Waste
- ☑ Construction/Demolition Waste
- ☐ Pesticides/Herbicides
- ☑ Acids/Bases
- ☑ Oily Waste
- ☑ Municipal Waste
- ☐ Mining Waste
- ☐ Explosives
- ☐ Other

Physical State of Waste as Deposited (check all that apply):
- ☑ Solid
- ☐ Sludge
- ☐ Powder
- ☑ Liquid
- ☐ Gas

EPA **Potential Hazardous Waste Site**
Preliminary Assessment Form - Page 3 of 4

CERCLIS Number:

7. Ground Water Pathway

Is Ground Water Used for Drinking Water Within 4 Miles:
- [x] Yes
- [ ] No

Is There a Suspected Release to Ground Water:
- [ ] Yes
- [x] No

List Secondary Target Population Served by Ground Water Withdrawn From:

0 - ¼ Mile	0
> ¼ - ½ Mile	0
> ½ - 1 Mile	0
> 1 - 2 Miles	3,500
> 2 - 3 Miles	10,300
> 3 - 4 Miles	0
Total Within 4 Miles	13,800

Type of Drinking Water Wells Within 4 Miles (check all that apply):
- [x] Municipal
- [x] Private
- [ ] None

Have Primary Target Drinking Water Wells Been Identified:
- [ ] Yes
- [x] No

If Yes, Enter Primary Target Population:
_____ People

Depth to Shallowest Aquifer:
20 Feet

Karst Terrain/Aquifer Present:
- [ ] Yes
- [x] No

Nearest Designated Wellhead Protection Area:
- [ ] Underlies Site
- [ ] > 0 - 4 Miles
- [x] None Within 4 Miles

8. Surface Water Pathway

Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):
- [ ] Stream
- [x] River
- [ ] Pond
- [ ] Lake
- [ ] Bay
- [ ] Ocean
- [ ] Other _____

Shortest Overland Distance From Any Source to Surface Water:
0 Feet
_____ Miles

Is There a Suspected Release to Surface Water:
- [ ] Yes
- [x] No

Site is Located in:
- [ ] Annual - 10 yr Floodplain
- [ ] > 10 yr - 100 yr Floodplain
- [x] > 100 yr - 500 yr Floodplain
- [ ] > 500 yr Floodplain

Drinking Water Intakes Located Along the Surface Water Migration Path:
- [ ] Yes
- [x] No

Have Primary Target Drinking Water Intakes Been Identified:
- [ ] Yes
- [ ] No

If Yes, Enter Population Served by Primary Target Intakes:
_____ People

List All Secondary Target Drinking Water Intakes:

Name	Water Body	Flow (cfs)	Population Served

Total within 15 Miles _____

Fisheries Located Along the Surface Water Migration Path:
- [ ] Yes
- [x] No

Have Primary Target Fisheries Been Identified:
- [ ] Yes
- [ ] No

List All Secondary Target Fisheries:

Water Body/Fishery Name	Flow (cfs)

EPA **Potential Hazardous Waste Site**
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CERCLIS Number:

8. Surface Water Pathway (continued)

Wetlands Located Along the Surface Water Migration Path:
☑ Yes
☐ No

Have Primary Target Wetlands Been Identified:
☐ Yes
☑ No

List Secondary Target Wetlands:

Water Body	Flow (cfs)	Frontage Miles
Driftwood River	1000	16
White River	1500	8

Other Sensitive Environments Located Along the Surface Water Migration Path:
☑ Yes
☐ No

Have Primary Target Sensitive Environments Been Identified:
☐ Yes
☑ No

List Secondary Target Sensitive Environments:

Water Body	Flow (cfs)	Sensitive Environment Type
Driftwood River	1000	Endangered Species Hab.

9. Soil Exposure Pathway

Are People Occupying Residences or Attending School or Daycare on or Within 200 Feet of Areas of Known or Suspected Contamination:
☐ Yes
☑ No

If Yes, Enter Total Resident Population:
_____ People

Number of Workers Onsite:
☐ None
☐ 1 - 100
☑ 101 - 1,000
☐ >1,000

Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination:
☐ Yes
☑ No

If Yes, List Each Terrestrial Sensitive Environment:

10. Air Pathway

Is There a Suspected Release to Air:
☐ Yes
☑ No

Enter Total Population on or Within:

Onsite	80
0 - ¼ Mile	0
> ¼ - ½ Mile	0
> ½ - 1 Mile	0
> 1 - 2 Miles	3000
> 2 - 3 Miles	7500
> 3 - 4 Miles	4200
Total Within 4 Miles	14,700

Wetlands Located Within 4 Miles of the Site:
☑ Yes
☐ No

Other Sensitive Environments Located Within 4 Miles of the Site:
☐ Yes
☑ No

List All Sensitive Environments Within ½ Mile of the Site:

Distance	Sensitive Environment Type/Wetlands Area (acres)
Onsite	Wetlands - 80 Acres
0 - ¼ Mile	Wetlands - 80 Acres
> ¼ - ½ Mile	Wetlands - 80 Acres

APPENDIX E

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) CONTRACT LABORATORY PROGRAM TARGET ANALYTE LIST (TAL) AND TARGET COMPOUND LIST (TCL)

U.S. Environmental Protection Agency (EPA) Contract Laboratory Program
Target Analyte List (TAL) and Target Compound List (TCL)

Target Analyte List

Aluminum	Magnesium
Antimony	Mercury
Arsenic	Nickel
Barium	Potassium
Beryllium	Selenium
Cadmium	Silver
Chromium	Sodium
Cobalt	Thallium
Copper	Tin
Cyanide	Vanadium
Iron	Zinc
Lead	

Target Compound List — Volatiles

Chloromethane	1,1,2,2-Tetrachloroethane
Bromomethane	1,2-Dichloropropane
Vinyl Chloride	trans-1,3-Dichloropropene
Chloroethane	Trichloroethene
Methylene Chloride	Dibromochloromethane
Acetone	1,1,2-Trichloroethane
Carbon Disulfide	Benzene
1,1-Dichloroethene	cis-1,3-Dichloropropene
1,1-Dichloroethane	Bromoform
trans-1,2-Dichloroethene	2-Hexanone
Chloroform	4-Methyl-2-pentanone
1,2-Dichloroethane	Tetrachloroethene
2-Butanone	Toluene
1,1,1-Trichloroethane	Chlorobenzene

U.S. Environmental Protection Agency (EPA) Contract Laboratory Program Target Analyte List (TAL) and Target Compound List (TCL) (Continued)

Target Compound List — Volatiles (continued)

Carbon Tetrachloride	Ethyl Benzene
Vinyl Acetate	Styrene
Bromodichloromethane	Total Xylenes

Semivolatiles (BNA)

Phenol	1,2-Dichlorobenzene
bis(2-Chloroethyl)ether	2-Methylphenol
2-Chlorophenol	bis(2-Chloroisopropyl)ether
1,3-Dichlorobenzene	4-Methylphenol
1,4-Dichlorobenzene	N-Nitroso-di-n-Dipropylamine
Benzyl Alcohol	
Hexachloroethane	Fluorene
Nitrobenzene	4-Nitroaniline
Isophorone	4,6-Dinitro-2-methyl-phenol
2-Nitrophenol	N-nitrosodiphenylamine
2,4-Dimethylphenol	4-Bromophenyl Phenyl ether
Benzoic Acid	
bis(2-Chloroethoxy)methane	Hexachlorobenzene
2,4-Dichlorophenol	Pentachlorophenol
1,2,4-Trichlorobenzene	Phenanthrene
Naphthalene	Anthracene
	Di-n-Butylphthalate
4-Chloroaniline	
Hexachlorobutadiene	Fluoranthene
4-Chloro-3-methylphenol	Pyrene
(para-chloro-meta-cresol)	Butylbenzylphthalate
2-Methylnaphthalene	3,3-Dichlorobenzidine

U.S. Environmental Protection Agency (EPA) Contract Laboratory Program
Target Analyte List (TAL) and Target Compound List (TCL)
(Continued)

Semivolatiles (BNA) (continued)

Hexachlorocyclopentadiene
2,4,6-Trichlorophenol
2,4,5-Trichlorophenol
2-Chloronaphthalene
2-Nitroaniline
Dimethylphthalate

Acenaphthylene
3-Nitroaniline
Acenaphthene
2,4-Dinitrophenol
4-Nitrophenol

Dibenzofuran
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Diethylphthalate
4-Chlorophenyl Phenyl ether

Benzo(a)anthracene
bis(2-ethylhexyl) phthalate
Chrysene
Di-n-octyl Phthalate
Benzo(b)fluoranthene
Benzo(k)fluoranthene

Benzo(a)pyrene
Indeno(1,2,3-cd)pyrene
Dicenz(a,h)anthracene
Benzo(g,h,i)perylene

Target Compound List — Pesticides/PCBs

alpha-BHC
beta-BHC
delta-BHC
gamma-BHC (Lindane)
Heptachlor
Aldrin
Heptachlor Epoxide

Dieldrin
4,4'-DDE
Endrin
Endosulfan II
4,4'-DDD
Endrin Aldehyde
Endosulfan Sulfate

U.S. Environmental Protection Agency (EPA) Contract Laboratory Program Target Analyte List (TAL) and Target Compound List (TCL) (Continued)

Target Compound List — Pesticides/PCBs (continued)

Endosulfan I	4,4'-DDT
Endrin Ketone	AROCLOR-1232
Methoxychlor	AROCLOR-1242
Chlordane	AROCLOR-1248
Toxaphene	AROCLOR-1254
AROCLOR-1016	AROCLOR-1260
AROCLOR-1221	

Organophosphorus Pesticides

Azinphos Methyl	Mevinphos
Boistar	Naled
Chlorpyrifos	Parathion Methyl
Coumaphos	Phorate
Dameton - O	Ronnel
Diazinon	Stirophos (Tetrachlorvinphos)
Disulfoton	Tokuthion (prothiofos)
Ethoprop	Trichloronate
Fensulfothion	
Fenthion	
Merphos	

Chlorinated Herbicides

2,4-D	Dinoseb
Delapon	MCPA
2,4-DB	MCPP
Dicamba	2,4,5-T
Dichlorprop	2,4,5-TP

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